

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.008 MGD wastewater treatment plant. This permit action consists of updating the WQS and updating boilerplate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq.

1. Facility Name and Mailing Address: Rappahannock Elementary School
Wastewater Treatment Plant
6 Schoolhouse Road
Washington, VA 22747

SIC Code: 4952 WWTP

Facility Location: 34 Schoolhouse Road
Washington, VA 22747
County: Rappahannock

Facility Contact Name: Robert Chappell
Telephone Number: (540) 987-8773
2. Permit No.: VA0022471
Expiration Date of previous permit: November 5, 2008
Other VPDES Permits associated with this facility: None
Other Permits associated with this facility: None
E2/E3/E4 Status: N/A
3. Owner Name: Rappahannock County Public Schools
Owner Contact/Title: Robert Chappell, Superintendent
Telephone Number: (540) 987-8773
4. Application Complete Date: May 12, 2008
Permit Drafted By: Joan C. Crowther
Date Drafted: 14/14/09
Draft Permit Reviewed By: Alison Thompson
Date Reviewed: 4/17/09
Public Comment Period : Start Date: June 25, 2009
End Date: July 27, 2009
5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination
Receiving Stream Name : Rush River, UT
Drainage Area at Outfall: 0.06 sq.mi.
River Mile: 0.16 miles
Stream Basin: Rappahannock River
Subbasin: None
Section: 4
Stream Class: III
Special Standards: None
Waterbody ID: VAN-E05R
7Q10 Low Flow: 0.0 MGD
7Q10 High Flow: 0.0 MGD
1Q10 Low Flow: 0.0 MGD
1Q10 High Flow: 0.0 MGD
Harmonic Mean Flow: 0.0 MGD
30Q5 Flow: 0.0 MGD
303(d) Listed: No
30Q10 Flow: 0.0 MGD
TMDL Approved: Yes
Date TMDL Approved: 1/23/08
(for downstream –Hazel River – *E.coli* Impairment)
6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

<u>✓</u> State Water Control Law <u>✓</u> Clean Water Act <u>✓</u> VPDES Permit Regulation <u>✓</u> EPA NPDES Regulation	<u>✓</u> EPA Guidelines <u>✓</u> Water Quality Standards
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7. Licensed Operator Requirements: Class IV

8. Reliability Class: Class II

9. Permit Characterization:

<input type="checkbox"/> Private	<input type="checkbox"/> Effluent Limited	<input type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input type="checkbox"/> Toxics Monitoring Program Required	<input type="checkbox"/> Interim Limits in Permit
<input checked="" type="checkbox"/> POTW	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input checked="" type="checkbox"/> TMDL		

10. Wastewater Sources and Treatment Description:

The wastewater treatment facility serves an elementary school and consists of a septic tank prior to a three stage biological oxidation pond. The first cell of the oxidation pond has a floating aerator, the second cell (separated from the first and third by a floating curtain) is the settling zone and the third cell is for nitrification. There are submerged plastic media cubes in the pond that are externally aerated using air blowers. Nitrification is achieved in this zone. Following the biological stages the effluent is chlorinated and then dechlorinated using tablet feeders. Sludge in the pond has never been removed.

See Attachment 2 for a facility schematic/diagram.

TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flow	Outfall Latitude and Longitude
001	Domestic	See Item 10 above.	0.008 MGD	38° 41' 10" N 78° 10' 37" W
See Attachment 3 for the USGS Washington topographic map. (DEQ #197B)				

11. Sludge Treatment and Disposal Methods:

The sludge from the septic tank is transported to the Remington Wastewater Treatment Plant (VA0076805) for proper disposal. The sludge in the biological pond has never been removed.

12. DEQ Ambient Water Monitoring Stations

TABLE 2

DEQ Water Monitoring Station ID	Description of the DEQ Water Monitoring Station
3-RUS003.23	Rush River, at the Rt. 621 Bridge; Biomonitoring Station
3-RUS005.24	Rush River, at the Rt. 626 Bridge; Special Study Station
3-RUS005.66	Rush River, at the Rt. 683 Bridge (upstream of Rts. 211/522); Watershed Station
3-RUS006.49	Rush River, at the Rt. 628 Bridge; Biomonitoring Station
3-RUS007.41	Rush River, at the Rt. 624 Bridge; Special Study Station
3-THO006.50	Thornton River, at the Rt. 729 Bridge; Watershed Station; located approximately 13.09 miles downstream of the Rappahannock Elementary School outfall location.

13. Material Storage:

TABLE 3 - Material Storage		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Chlorine Tablets	1-5 gallon bucket	Stored in a covered container
Dechlorination Tablets	1-5 gallon bucket	Stored in a covered container

14. Site Inspection: Performed by Terry Nelson on March 22, 2008. (See Attachment 4).

15. Receiving Stream Water Quality and Water Quality Standards:a) Ambient Water Quality Data

There is no monitoring data for the receiving stream (UT to Rush River). The unnamed tributary to the Rush River flows into the Rush River, which in turn flows into the Thornton River. The nearest downstream station is 3-THO006.50, located at the Route 729 bridge crossing on the Thornton River. Station 3-THO006.50 is an ambient DEQ monitoring station, and is located approximately 13.09 miles downstream from the outfall of VA0022471. Table 2 lists the water stations on the Rush River that have been sampled in the past. Currently, the Rush River is not being sampled by DEQ-NRO. (See Attachment 5 for the Rappahannock Elementary School Planning Statement dated May 19, 2008.)

b) Receiving Stream Water Quality Criteria

Part IX of 9 VAC 25-260 (360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream an unnamed tributary to the Rush River is located within Section 4 of the Rappahannock River Basin, and classified as a Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0-9.0 standard units (S.U.).

Attachment 6 details other water quality criteria applicable to the receiving stream.

Ammonia:

Staff has re-evaluated the effluent data for pH (for the period of November 2003 through November 2008) and finds no significant differences from the data used to establish ammonia criteria and subsequent effluent limits in the previous permit. The previous pH value used was 7.8 SU and the data reviewed indicated a 90th percentile of 7.74 SU (Attachment 7). The temperature value used in the 2003 permit reissuance was the default value of 25°C. Because no new temperature data is available, the default temperature value of 25°C will be carried forward for this permit reissuance. Therefore, the previous established pH and temperature values will be carried forward as part of this reissuance process. The ammonia water quality criteria calculations are shown in Attachment 8.

Metals Criteria:

There is no hardness data for this facility. Staff guidance suggests using a default hardness value of 50 mg/l CaCO₃ for streams east of the Blue Ridge.

Bacteria Criteria: The Virginia Water Quality Standards (9 VAC 25-260-170 B.) states sewage discharges shall be disinfected to achieve the following criteria:

E. coli bacteria per 100 ml of water shall not exceed the following:

	Geometric Mean ¹	Single Sample Maximum
Freshwater <i>E. coli</i> (N/100 ml)	126	235

¹For two or more samples [taken during any calendar month].

c) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9 VAC 25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Rush Run, UT, is located within Section 4 of the Rappahannock River Basin. There are no special standards designed for this section in the Water Quality Standards.

d) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on January 9, 2009 for records to determine if there are threatened or endangered species in the vicinity of the discharge. No threatened or endangered species were identified. See Attachment 9 for the database search results.

16. Antidegradation (9 VAC 25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 based on an evaluation of the receiving stream 7Q10 of 0.0. Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:

Effluent data were reviewed, and there have been no exceedances of the established limitations.

Ammonia and TRC require a wasteload allocation analysis.

b) Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:

WLA	=	Wasteload allocation
C _o	=	In-stream water quality criteria
Q _e	=	Design flow
Q _s	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for chronic ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
f	=	Decimal fraction of critical flow
C _s	=	Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C_o.

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as N is likely present since this is a WWTP treating sewage and total residual chlorine may be present since chlorine is used for disinfection,

c) Effluent Limitations Toxic Pollutants, Outfall 001 –

9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9 VAC 25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N:

Staff evaluated the new pH effluent data and has concluded it is not significantly different than what was used to derive the existing ammonia limits (Attachment 10). There was no new temperature data available for this evaluation; therefore, the default value of 25° C was used. During the 2003 permit reissuance, the discharge for this facility was reclassified as intermittent, as the facility does not regularly discharge. Therefore, the ammonia wasteload allocation and effluent limitation was calculated using the acute criteria only. The ammonia permit limitations based on this evaluation indicated that the limitation would meet water quality standards at 13 mg/L (Attachment 8). The

existing ammonia permit limitation is 12 mg/L. Because the facility has shown that it can be operated to meet the 12 mg/L, existing ammonia limitations are proposed to continue in the reissued permit.

2) Total Residual Chlorine:

Chlorine is used for disinfection and is potentially in the discharge. Staff calculated WLAs for TRC using current critical flows. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.008 mg/L and a weekly average limit of 0.010 mg/L are proposed for this discharge (see Attachment 11).

3) Metals/Organics:

No data was available to evaluate; therefore, no limits are needed.

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), biochemical oxygen demand-5 day (BOD₅), total suspended solids (TSS), and pH limitations are proposed.

Dissolved Oxygen, and BOD₅ limitations are based on the stream modeling conducted in June 17, 1974 (Attachment 12) and are set to meet the water quality criteria for D.O. in the receiving stream. The stream model ensures that with an effluent dissolved oxygen limitation of 6 mg/L, the dissolved oxygen sag in the receiving stream does not go below 5.0 mg/L. Staff recognizes that the decision to classify the discharge as intermittent conflicts with the steady state dissolved oxygen stream model used to determine the BOD₅ and D.O. limitations. However, staff believes the model results are still an adequate basis to determine these limits. The decision to classify the discharge intermittent was based on the 30 day exposure period for the ammonia chronic criteria. Staff is certain that the facility will not discharge for 30 consecutive days as past monthly discharge monitoring reports have continued to illustrate. The staff also believes the facility can and will discharge for periods long enough to cause a downstream D.O. sag point and that the D.O. model is still an appropriate tool to determine limitations to protect the dissolved oxygen water quality standard.

It is staff's practice to equate the Total Suspended Solids limits with the BOD₅ limits. TSS limits are established to equal BOD₅ limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9 VAC25-260-170.

e) Effluent Limitations and Monitoring Summary

The effluent limitations are presented in the following table. Limits were established for BOD₅, Total Suspended Solids, Ammonia, pH, Dissolved Oxygen, Total Residual Chlorine, and *E.coli* bacteria.

The limit for Total Suspended Solids is based on Best Professional Judgement.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/l), with the flow values (in MGD) and a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19. Effluent Limitations/Monitoring Requirements:

Design flow is 0.008 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		N/A		N/A	NL	1/D	Estimate
pH	2	N/A		N/A		6.0 S.U.	9.0 S.U.	1/D	Grab
BOD ₅	3,4	30 mg/L	0.90 kg/day	45 mg/L	1.40 kg/day	N/A	N/A	1/M	Grab
Total Suspended Solids (TSS)	1	30 mg/L	0.90 kg/day	45 mg/L	1.40 kg/day	N/A	N/A	1/M	Grab
DO	2,4	N/A		N/A		6.0 mg/L	N/A	1/D	Grab
Ammonia, as N (mg/L)	2	12 mg/L		12 mg/L		N/A	N/A	1/M	Grab
<i>E. coli</i> (Geometric Mean)	2	126 n/100mls		N/A		N/A	N/A	2/M	Grab
Total Residual Chlorine (after contact tank)	2, 3	N/A		N/A		1.0 mg/L	N/A	1/D	Grab
Total Residual Chlorine (after dechlorination)	2	0.008 mg/L		0.010 mg/L		N/A	N/A	1/D	Grab

The basis for the limitations codes are:

1. Best Professional Judgement
2. Water Quality Standards
3. DEQ Disinfection Guidance
4. Stream Model- Attachment 12

MGD = Million gallons per day.

N/A = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/D = Once every day.

1/M = Once every month.

2/M = Twice a month at least 7 days
apart.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

20. Other Permit Requirements :

- a) Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions. A minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more than 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be <1.0 mg/L with any TRC <0.6 mg/L considered a system failure. Monitoring at numerous STPs has concluded that a TRC residual of 1.0 mg/L is an adequate indicator of compliance with the *E. coli* criteria. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

9 VAC 25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

21. Other Special Conditions :

- a) 95% Capacity Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.B.2. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.
- b) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment

Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190.E. Within 90 days of the effective date of this permit, the permittee shall submit for approval either a statement confirming the accuracy and completeness of the current O&M Manual or a revised updated O & M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

- c) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9 VAC 25-31-200 D, and Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.) requires licensure of operators. This facility requires a Class IV operator.
- d) Reliability Class. The Sewage Collection and Treatment Regulation at 9 VAC 25-790 requires sewerage works achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. The facility is required to meet a Reliability Class of II.
- e) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.
- f) Treatment Works Closure Plan. The State Water Control Law §62.1-44.15:1.1, makes it illegal for an owner to cease operation and fail to implement a closure plan when failure to implement the plan would result in harm to human health or the environment. This condition is used to notify the owner of the need for a closure plan where a facility is being replaced or is expected to close.
- g) Water Quality Criteria Reopener. The VPDES Permit Regulation at 9 VAC 25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.
- i) Sludge Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.C.4. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.
- j) Sludge Use and Disposal. The VPDES Permit Regulation at 9 VAC 25-31-100.P., 220.B.2., and 420-720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.
- k) Outfall 001 Monitoring. The permittee is required to perform three concurrent samplings of the effluent parameters at the dechlorination unit and at the discharge pipe. The facility's discharge point is not at a very accessible area so the permittee has requested that the effluent from the dechlorination unit be considered Outfall 001. Should there be no significant difference between the two sampling points, upon written notification from DEQ, Outfall 001 shall be designed as the effluent directly after the dechlorination unit instead at the discharge pipe into the receiving stream. This concurrent sampling shall be completed within the first six months of the permit's term.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

a) Special Conditions:

- 1) The “Indirect Dischargers” special condition was deleted from this permit reissuance because this wastewater treatment plant serves only the elementary school so all wastewater sources are already under the control of the Rappahannock County Public Schools.
- 2) The “Outfall 001 Monitoring” special condition was deleted and replaced with a revised “Outfall 001 Monitoring” special condition. The revised special condition requires the concurrent effluent sampling for all parameters (except for Total Residual Chlorine) specified in VPDES Permit VA0022471 from both the dechlorination unit and at the discharge outfall pipe. There shall be three sampling events at least one month apart during the first six months of the permit term. Once this data has been submitted and reviewed by DEQ-NRO, the Outfall 001 location will be specified as either after the dechlorination unit or at the outfall discharge pipe. Because the discharge pipe is located a distance from the actual facility location, this special condition was written to determine if there was any change in the effluent quality to prevent a representative effluent sample from the dechlorination unit instead of from the discharge pipe prior to the receiving stream.

b) Monitoring and Effluent Limitations:

- 1) The additional bacterial effluent limitations and Monitoring Requirement as specified in Part I. B.2 of the 2003 permit reissuance has been deleted from the 2008 permit reissuance. This special condition was incorporated into the 2003 permit reissuance to ensure that the chlorination and dechlorination units were operating efficiently so that the *E.coli* water quality standard was being maintained. Although no documentation was found to indicate that this special condition was complied with, a review of the *E.coli* data from December 2003 through November 2008 indicates that the facility has consistently met the 126 n/cmls effluent limitation. (See Attachment 13).
- 2) Due to the downstream *E.coli* bacteria impairment (Hazel River), an *E. coli* effluent limitation of 126 n/100 mls at a sampling frequency of twice per month (at least seven days apart) was added to the permit’s effluent page, Part I.A.1. (See Item 26 of the Fact Sheet for more information.)

24. Variances/Alternate Limits or Conditions:

There were no variances or alternate limitation or conditions incorporated into this permit reissuance.

25. Public Notice Information:

First Public Notice Date: June 25, 2009

Second Public Notice Date: July 2, 2009

Public Notice Information is required by 9 VAC 25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3925, jccrowther@deq.virginia.gov. See Attachment 14 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):

TMDL Reopener: This special condition is to allow the permit to be reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

This facility discharges directly to an unnamed tributary to Rush River. This receiving stream segment is not currently on the 2008 303(d) list for impairments. However, the downstream segment of the Hazel River (VANE07R_HAZ01A04) was listed due to sufficient exceedances of the single sample maximum *E. coli* bacteria criterion (6 of 16 samples - 37.5%) that were recorded at DEQ's ambient water quality monitoring station (3-HAZ005.98) at the Route 625 crossing to assess this stream segment as not supporting of the recreation use goal. The Upper Rappahannock River TMDL which includes Hazel River was submitted to EPA and approved on 1/23/2008. All upstream discharges were taken into account when developing the TMDL, thus, Rappahannock Elementary School Wastewater Treatment Plant was given a WLA for *E. coli* of 1.40E+10 cfu/year.

Special Permit considerations: None

27. Additional Comments:

Previous Board Action(s): None

Staff Comments: The permit reissuance was delayed due to staff workload.

Public Comment: Two comments were received during the public comment period. Areas of concern dealt with possible contamination of surrounding groundwater wells from the facility's discharge, for other downstream property owners that may suffer from a degraded water quality, the lack of the property owner receiving reports of the effluent quality and general questions regarding the effluent requirement.

In response to these comments, the draft permit along with the fact sheet was emailed to the citizen who had concerns about the effluent limitations followed by a telephone call explaining the effluent limitations, frequency of analysis and sample type.

Effluent data for the past five years were also sent to each citizen.

Both citizens have groundwater wells that they say are located near the wastewater treatment plant's discharge point and/or receiving stream. The depth of the wells range from 400 to 600 feet. During telephone calls to both citizens, it was explained that wells at this depth should not be adversely affected by this discharge. The effluent flow is approximately 6,000 gallons per day and is intermittent in nature. The facility usually does not discharge during the summer when the receiving stream is likely to have a lower stream flow. It was also explained that the effluent limitations are based on a stream model that determines what BOD₅ and dissolved oxygen effluent limitations need to be to maintain water quality standards during 7Q10 conditions in the stream.

It appears that the citizen who was receiving effluent reports was receiving them from either the facility or their consultants. DEQ does not routinely mail out this information. This citizen was informed that if he would like to get this effluent information periodically, then he could request it from DEQ under Freedom of Information Act or DEQ would recommend that they contact the permittee directly for this information.

EPA Checklist: The checklist can be found in Attachment 15.

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Flow Frequency Determination
Rappahannock Elementary School - #VA0022471

TO: Doug Stockman, NRO

FROM: Paul E. Herman, P.E., WQAP *Paul*

DATE: March 25, 1998

COPIES: Ron Gregory, Charles Martin, File

The Rappahannock Elementary School discharges to an unnamed tributary of the Rush River near Washington, VA. Flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The values at the discharge point were determined by inspection of the USGS Washington Quadrangle topographical map which shows the receiving stream as intermittent at the discharge point. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and the harmonic mean.

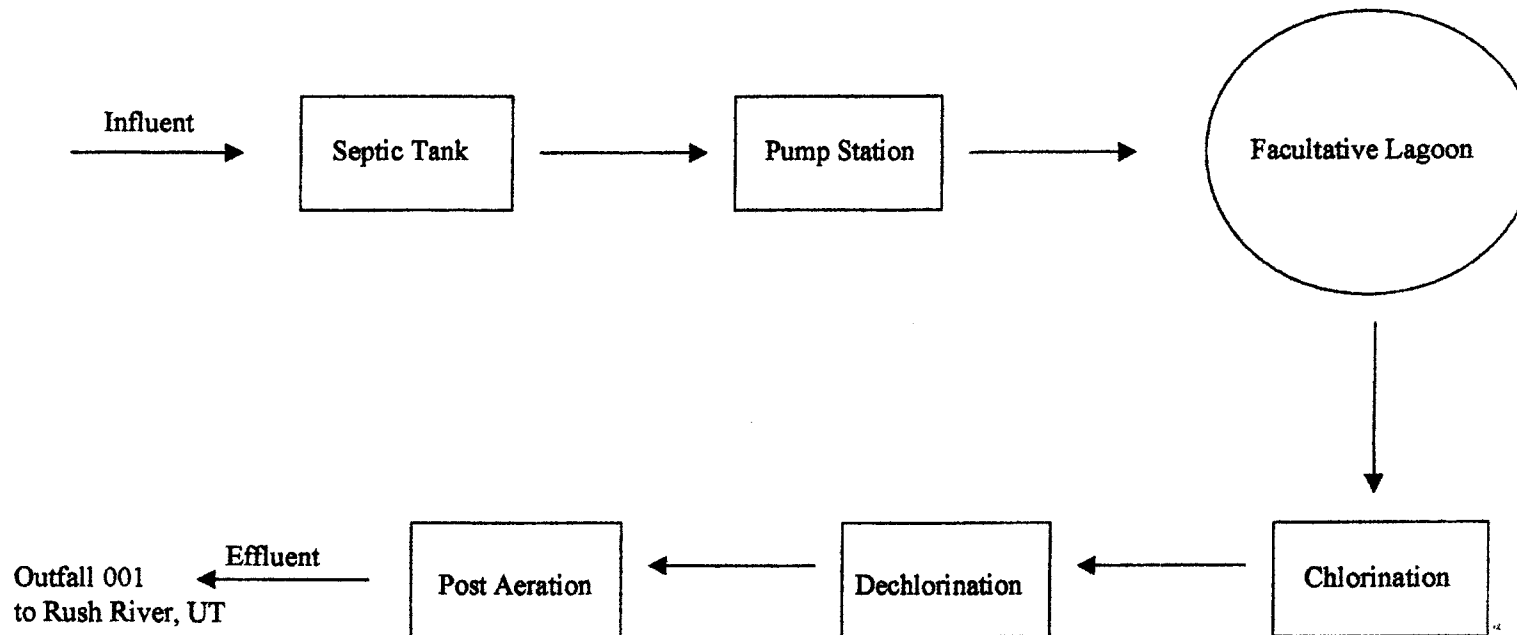
The intermittent stream drains to a pond. During low flow conditions, flow into the pond is likely to be retained as storage. In order to evaluate the effluents impact on the water quality in the pond, dilution ratios and retention times should be considered.

If you have any questions concerning this analysis, please let me know.

RECEIVED
MAR 27 1998

Northern VA. Region
Dept. of Env. Quality

Rappahannock Elementary School Flow Diagram



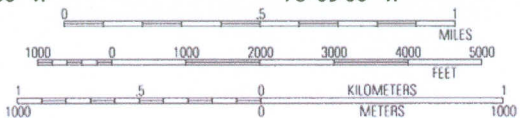
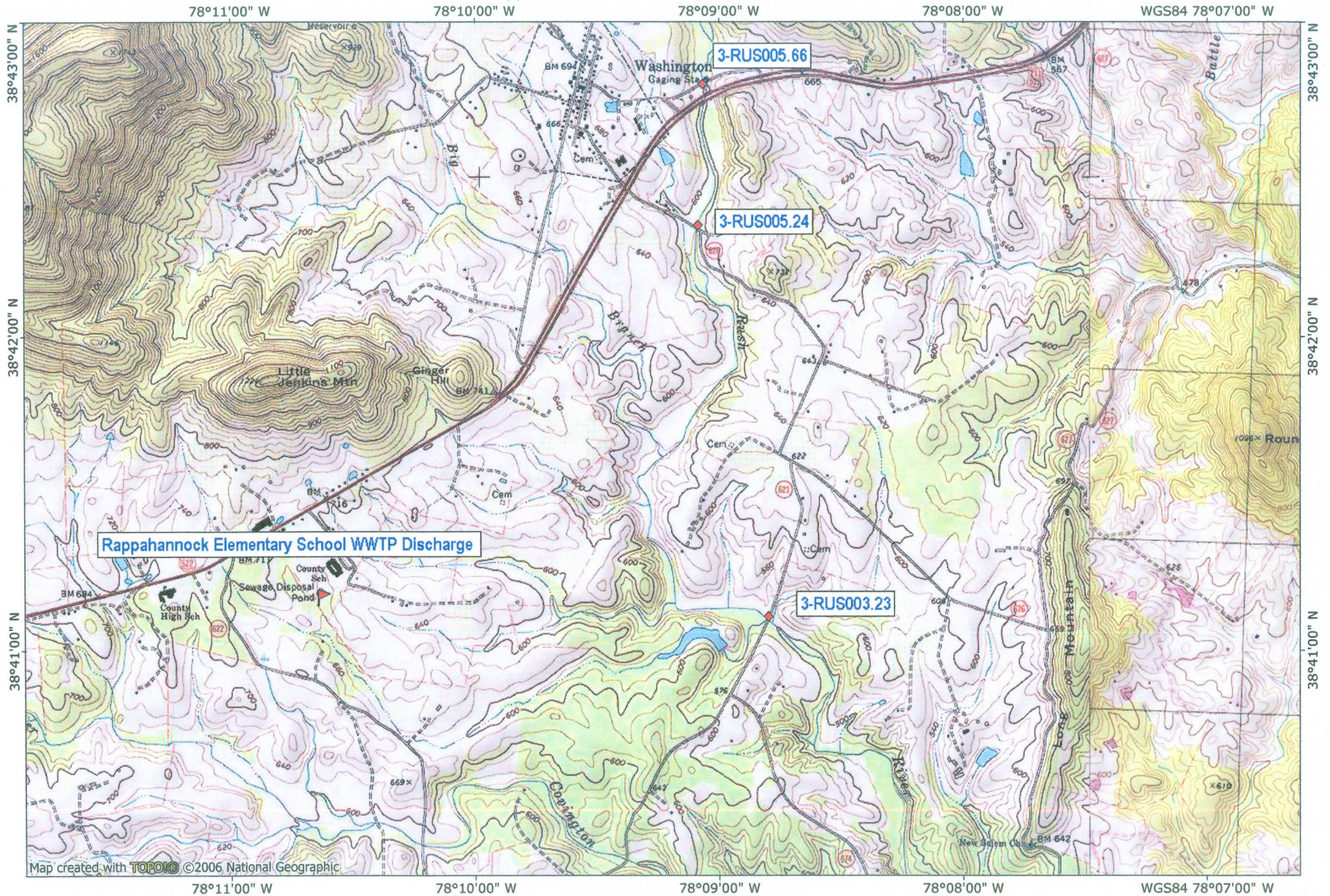
Attachment 2

78°14'00" W 78°12'00" W 78°10'00" W 78°08'00" W 78°06'00" W 78°04'00" W 78°02'00" W WGS84 77°59'00" W



Attachment 3

Rappahannock Elementary School 4 10 09



MN * TN
10°
04/13/09



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

L. Preston Bryant, Jr.
Secretary of Natural Resources

NORTHERN VIRGINIA REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3801
www.deq.virginia.gov

David K. Paylor
Director

~~Jeffery A. Steers~~
Regional Director

June 6, 2008

Mr. Robert Chappell
Superintendent
Rappahannock County Schools
6 School House Road
Sperryville, VA 22747

Re: Rappahannock Elementary School STP, Permit VA0022471

Dear Mr. Chappell:

Enclosed are copies of the technical and laboratory inspection reports generated from observations made while performing a Facility Technical Inspection at the Rappahannock Elementary School - Sewage Treatment Plant (STP) on May 22, 2008. The compliance staff would like to thank Mr. Daniel Keyser for his time and assistance during the inspection.

A summary for both the technical and laboratory inspections is enclosed. **No Deficiencies** were noted during the laboratory inspection. Please note the requirements and recommendations addressed in the technical summary. Please submit in writing a progress report to this office by **June 27, 2008** for the items addressed in the summary. Your response may be sent either via the US Postal Service or electronically, via E-mail. If you chose to send your response electronically, we recommend sending it as an Acrobat PDF or in a Word-compatible, write-protected format. Additional inspections may be conducted to confirm the facility is in compliance with permit requirements.

If you have any questions or comments concerning this report, please feel free to contact me at the Northern Virginia Regional Office at (703) 583-3833 or by E-mail at twnelson@deq.virginia.gov.

Sincerely,


Terry Nelson
Environmental Specialist II

cc: Permits / DMR File; Compliance Manager; Compliance Auditor; Compliance Inspector
OWCP - (SGStell)
Troy Jenkins, RCWSA
John McCarthy, County Administrator

LABORATORY INSPECTION REPORT SUMMARY

FACILITY NAME: Rappahannock Elementary School	FACILITY NO: VA0022471	INSPECTION DATE: May 22, 2008
<input type="checkbox"/> Deficiencies	<input checked="" type="checkbox"/> No Deficiencies	
LABORATORY RECORDS		
The Laboratory Records section had No Deficiencies noted during the inspection.		
GENERAL SAMPLING AND ANALYSIS		
The General Sampling and Analysis section had No Deficiencies noted during the inspection.		
LABORATORY EQUIPMENT		
The Laboratory Equipment section had No Deficiencies noted during the inspection.		
INDIVIDUAL PARAMETERS		
pH		
The analysis for the parameter of pH had No Deficiencies noted during the inspection.		
DO		
The analysis for the parameter of Dissolved Oxygen (DO) had No Deficiencies noted during the inspection.		
TRC		
The analysis for the parameter of Total Residual Chlorine (TRC) had No Deficiencies noted during the inspection.		
COMMENTS		
The facility staff should check the DEQ website at http://www.deq.virginia.gov/vpdes/checklist.html and download the most recent inspection check sheets to keep up to date with changes in minimum laboratory requirements.		

**DEQ
WATER FACILITY
INSPECTION REPORT
PART 1**

Inspection date: **May 22, 2008** Date form completed: **May 26, 2008**
 Inspection by: **Terry Nelson** Inspection agency: **DEQ NRO**
 Time spent: **4 hours** Announced: **Yes**
 Reviewed by: *[Signature]* **6/6/08** Scheduled: **Yes**
 Present at inspection: **Dan Keyser, Rappahannock County**

TYPE OF FACILITY:

Domestic**Industrial**

☐ Federal
☒ Nonfederal

☐ Major
☒ Minor

☐ Major
☐ Minor

☐ Primary
☐ Secondary

Type of inspection:

☒ Routine
☐ Compliance/Assistance/Complaint
☐ Reinspection

Date of last inspection: **June 15, 2005**
 Agency: **DEQ NRO**

Population served: approx. **750 students/faculty** Connections served: **One school**

Last month average: (Influent) Month/year: **Not tested**

Last month average: (Effluent) Month/year: **March 2008**
 Flow: **0.006 MGD** pH: **7.6 S.U.** TSS: **6.1 mg/L**
 BOD₅ **<5 mg/L** Ammonia **0.28 mg/L** E. Coli **2 #/CML**

Quarter average: (Effluent) January – March 2008
 Flow: **0.006 MGD** pH: **7.6 S.U.** TSS: **7.6 mg/L**
 BOD₅ **<5 mg/L** Ammonia **0.4 mg/L** E. Coli **2 #/CML**

DATA VERIFIED IN PREFACE

☐ Updated ☒ No changes

Has there been any new construction?

☐ Yes ☒ No

If yes, were plans and specifications approved?

☐ Yes ☐ No ☒ NA

DEQ approval date:

(B) PLANT RECORDS

VPDES NO. VA0022471

1. Which of the following records does the plant maintain?
- | | | | |
|---|---|--|--|
| Operational Logs for each unit process | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> NA |
| Instrument maintenance and calibration | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> NA |
| Mechanical equipment maintenance | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | <input type="checkbox"/> NA |
| Industrial waste contribution
(Municipal Facilities) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> NA |

2. What does the operational log contain?
- | | |
|---|---|
| <input checked="" type="checkbox"/> Visual observations | <input checked="" type="checkbox"/> Flow measurement |
| <input checked="" type="checkbox"/> Laboratory results | <input checked="" type="checkbox"/> Process adjustments |
| <input type="checkbox"/> Control calculations | <input type="checkbox"/> Other (specify) |

Comments:

3. What do the mechanical equipment records contain?
- | | |
|--|---|
| <input checked="" type="checkbox"/> As built plans and specs | <input checked="" type="checkbox"/> Spare parts inventory |
| <input checked="" type="checkbox"/> Manufacturers instructions | <input type="checkbox"/> Equipment/parts suppliers |
| <input type="checkbox"/> Lubrication schedules | <input type="checkbox"/> Other (specify) |

Comments:

4. What do the industrial waste contribution records contain? (Municipal Only)
- | | |
|--|--|
| <input type="checkbox"/> Waste characteristics | <input type="checkbox"/> Locations and discharge types |
| <input type="checkbox"/> Impact on plant | <input type="checkbox"/> Other (specify) |

Comments: **Not applicable**

5. Which of the following records are kept at the plant and available to personnel?
- | | |
|---|---|
| <input type="checkbox"/> Equipment maintenance records | <input checked="" type="checkbox"/> Operational Log |
| <input type="checkbox"/> Industrial contributor records | <input checked="" type="checkbox"/> Instrumentation records |
| <input type="checkbox"/> Sampling and testing records | |
6. Records not normally available to plant personnel and their location:
- **All operating records are maintained at the plant.**
 - **Sampling/testing records are maintained at ESS , Culpeper, VA.**
 - **Maintenance records are maintained by the school's maintenance department.**

7. Were the records reviewed during the inspection? ☒ Yes ☐ No
8. Are the records adequate and the O & M Manual current? ☒ Yes ☐ No
9. Are the records maintained for the required 3-year time period? ☒ Yes ☐ No

Comments:

UNIT PROCESS: Ponds/Lagoons

1. Type: ☒ Aerated ☐ Unaerated ☐ Polishing
2. No. of cells: **3** In operation: **3**
3. Color: ☒ Green ☐ Brown ☐ Light Brown ☐ Grey ☐ Other:
4. Odor: ☐ Septic* ☐ Earthy ☒ None ☐ Other:
5. System operated in: ☒ Series ☐ Parallel ☐ NA
6. If aerated, are lagoon contents mixed adequately? ☒ Yes ☐ No* ☐ NA
7. If aerated, is aeration system operating properly? ☒ Yes ☐ No* ☐ NA
8. Evidence of following problems:
- | | | |
|----------------------------------|--|--|
| a. vegetation in lagoon or dikes | <input checked="" type="checkbox"/> Yes* | <input type="checkbox"/> No |
| b. rodents burrowing on dikes | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
| c. erosion | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
| d. sludge bars | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
| e. excessive foam | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
| f. floating material | <input type="checkbox"/> Yes* | <input checked="" type="checkbox"/> No |
9. Fencing intact: ☒ Yes ☐ No*
10. Grass maintained properly: ☒ Yes ☐ No
11. Level control valves working properly: ☒ Yes ☐ No*
12. Effluent discharge elevation: ☒ Top ☐ Middle ☐ Bottom
13. Freeboard: **2 ft.**
14. Appearance of effluent: ☒ Good ☐ Fair ☐ Poor
15. General condition: ☒ Good ☐ Fair ☐ Poor
16. Are monitoring wells present? ☐ Yes ☒ No
- Are wells adequately protected from runoff? ☐ Yes ☐ No* ☒ NA
- Are caps on and secured? ☐ Yes ☐ No* ☒ NA

Comments:

- 8. There were young trees along the top of the lagoon and a small shrub in a liner vent hole.**
- **Prior to disinfection, effluent is aerated for ammonia removal.**
 - **The facility is utilizing a Lemna system in the facultative pond. Two curtains and a series of floating plastic barriers direct wastewater through the system and allow nutrient uptake by duckweed.**
 - **The duckweed is allowed to naturally decay.**

UNIT PROCESS: Dechlorination

1. Chemical used: ☐ Sulfur Dioxide ☒ Bisulfite ☐ Other
2. No. of sulfonators: In operation:
3. No. of evaporators: In operation:
4. No. of chemical feeders: **1** In operation: **1**
5. No. of contact tanks: **1** In operation: **1**
6. Proper flow distribution between units: ☐ Yes ☐ No* ☒ NA
7. How is chemical introduced into the wastewater?
☐ Perforated diffusers
☐ Injector with single entry point
☒ Other: **Tablet feeder**
8. Control system operational: ☐ Yes ☐ No* ☒ NA
a. residual analyzers: ☐ Yes ☐ No* ☒ NA
b. system adjusted: ☐ Automatic ☒ Manual ☐ Other:
9. Applied dechlorination dose: **2 Tablets/day**
10. Chlorine residual in basin effluent: **0.00 mg/L RCWSA**
0.01 mg/L DEQ 1154 hours
11. Contact basins adequately baffled: ☐ Yes ☐ No* ☒ NA
12. Adequate ventilation:
a. cylinder storage area: ☐ Yes ☐ No* ☒ NA
b. equipment room: ☐ Yes ☐ No* ☒ NA
13. Proper safety precautions used: ☒ Yes ☐ No*
14. General condition: ☐ Good ☒ Fair ☐ Poor

Comments:

- **A sample of the dechlorinated effluent was used for pH measurement. Mr. Keyser obtained a value of 7.15 SU versus 7.25 SU @ 17.1° C for DEQ (1146 hours).**

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
LABORATORY INSPECTION REPORT

10/01

FACILITY NO: VA0022471	INSPECTION DATE: May 22, 2008	PREVIOUS INSPECTION: June 15, 2005	PREVIOUS EVALUATION: No Deficiencies	TIME SPENT: 1 hour
NAME/ADDRESS OF FACILITY: Rappahannock Elementary School 34 Schoolhouse Road Sperryville, VA 22747		FACILITY CLASS:	FACILITY TYPE:	UNANNOUNCED INSPECTION?
		() MAJOR	(X) MUNICIPAL	() YES
		() MINOR	() INDUSTRIAL	(X) NO
		(X) SMALL	() FEDERAL	FY-SCHEDULED INSPECTION?
		() VPA/NDC	() COMMERCIAL LAB	(X) YES
				() NO
INSPECTOR(S): Terry Nelson		REVIEWERS: <i>[Signature]</i> 6/6/08	PRESENT AT INSPECTION: Daniel Keyser	

LABORATORY EVALUATION	DEFICIENCIES?	
	Yes	No
LABORATORY RECORDS		X
GENERAL SAMPLING & ANALYSIS		X
LABORATORY EQUIPMENT		X
DISSOLVED OXYGEN ANALYSIS PROCEDURES		X
pH ANALYSIS PROCEDURES		X
TOTAL RESIDUAL CHLORINE ANALYSIS PROCEDURES		X

QUALITY ASSURANCE/QUALITY CONTROL			
Y/N	QUALITY ASSURANCE METHOD	PARAMETERS	FREQUENCY
Y	REPLICATE SAMPLES	TRC, pH	One per 20
	SPIKED SAMPLES		
Y	STANDARD SAMPLES	TRC	Daily
	SPLIT SAMPLES		
	SAMPLE BLANKS		
	OTHER		
	EPA-DMR QA DATA?	RATING: () No Deficiency () Deficiency (X) NA	
	QC SAMPLES PROVIDED?	RATING: () No Deficiency () Deficiency (X) NA	

ANALYST:	Dan Keyser	VPDES NO	VA0022471
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Parameter: Hydrogen Ion (pH)
Method: Electrometric
01/08

Meter: **Orion**

METHOD OF ANALYSIS

X	18 th Edition of Standard Methods-4500-H-B
	21 st or On-Line Edition of Standard Methods-4500-H-B (00)

pH is a method defined analyte so modifications are not allowed. [40 CFR Part 136.6]

- 1) Is a certificate of operator competence or initial demonstration of capability available for each analyst/operator performing the analysis? **NOTE:** Analyze 4 samples of known pH. May use external source of buffer (different lot/manufacturer than buffers used to calibrate meter). Recovery for each of the 4 samples must be ± 0.1 SU of the known concentration of the sample. [SM 1020 B.1]
- 2) Is the electrode in good condition (no chloride precipitate, etc.)? [2.b/c and 5.b]
- 3) Is electrode storage solution in accordance with manufacturer's instructions? [Mfr.]
- 4) Is meter calibrated on at least a daily basis using three buffers all of which are at the same temperature? [4.a] **NOTE:** Follow manufacturer's instructions.
- 5) After calibration, is a buffer analyzed as a check sample to verify that calibration is correct? Agreement should be within ± 0.1 SU. [4.a]
- 6) Do the buffer solutions appear to be free of contamination or growths? [3.1]
- 7) Are buffer solutions within their listed shelf life or have they been prepared within the last 4 weeks? [3.a]
- 8) Is the cap or sleeve covering the access hole on the reference electrode removed when measuring pH? [Mfr.]
- 9) For meters with ATC that also have temperature display, was the thermometer calibrated annually? [SM2550 B.1]
- 10) Is the temperature of buffer solutions and samples recorded when determining pH? [4.a]
- 11) Is sample analyzed within 15 minutes of collection? [40 CFR 136.6]
- 12) Was the electrode rinsed and then blotted dry between reading solutions (Disregard if a portion of the next sample analyzed is used as the rinse solution)? [4.a]
- 13) Is the sample stirred gently at a constant speed during measurement? [4.b]
- 14) Does the meter hold a steady reading after reaching equilibrium? [4.b]
- 15) Is a duplicate sample analyzed after every 20 samples if citing 18th or 19th Edition [1020 B.6] or daily for 20th or 21st Edition [Part 1020] **Note:** Not required for *in situ* samples.
- 16) Is pH of duplicate samples within 0.1 SU of the original sample? [Part 1020]
- 17) Is there a written procedure for which result will be reported on DMR (Sample or Duplicate) and is this procedure followed? [DEQ]

Y	N
X	
X	
X	
X	
X	
X	
X	
NA	
X	
X	
X	
X	
X	
X	
X	

COMMENTS:	Thermistor was checked on 07/12/07 at 10 and 26° C. Correction of -0.2° C.
PROBLEMS:	No problems observed.

ANALYST:	Dan Keyser	VPDES NO	VA0022471
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Parameter: Total Residual Chlorine
Method: DPD Colorimetric (HACH Pocket Colorimeter™)
01/08

Instrument: **Hach Pocket Colorimeter**

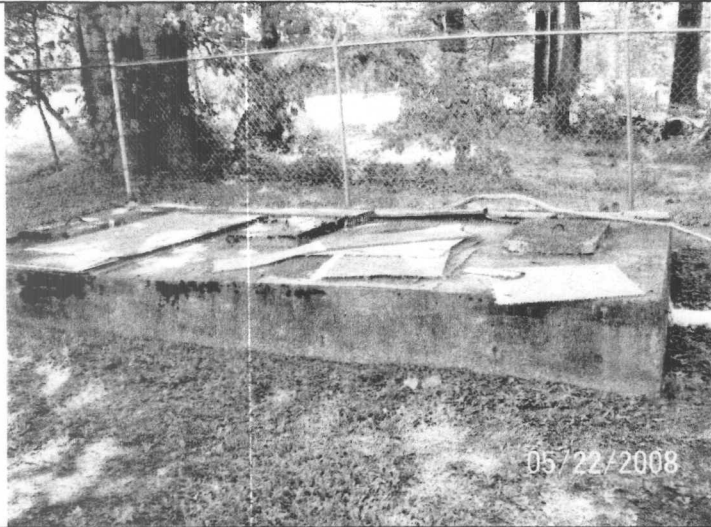
METHOD OF ANALYSIS:

X	HACH Manufacturer's Instructions (Method 8167) plus an edition of Standard Methods
X	18 th Edition of Standard Methods 4500-Cl G
	21 st Edition of Standard Methods 4500-Cl G (00)

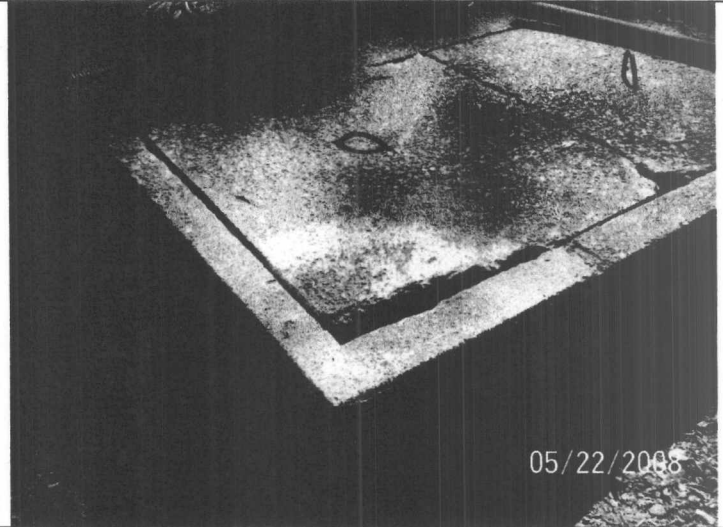
- 1) Is a certificate of operator competence or initial demonstration of capability available for each analyst/operator performing this analysis? NOTE: Analyze 4 samples of known TRC. Must use a lot number or source that is different from that used to prepare calibration standards. May not use Specv™. [SM 1020 B.1]
- 2) Are the DPD PermaChem® Powder Pillows stored in a cool, dry place? [Mfr.]
- 3) Are the pillows within the manufacturer's expiration date? [Mfr]
- 4) Has buffering capability of DPD pillows been checked annually? (Pillows should adjust sample pH to between 6 and 7) [Mfr]
- 5) When pH adjustment is required, is H₂SO₄ or NaOH used? [11.3.1]
- 6) Are cells clean and in good condition? [Mfr]
- 7) Is the low range (0.01-mg/L resolution) used for samples containing residuals from 0-2.00 mg/L? [Mfr.]
- 8) Is calibration curve developed (may use manufacturer's calibration) with daily verification using a high and a low standard? NOTE: May use manufacturer's installed calibration and commercially available chlorine standards for daily calibration verifications. [18th ed 1020 B.5; 21st ed 4020 B.2.b]
- 9) Is the 10-mL cell (2.5-cm diameter) used for samples from 0-2.00 mg/L? [Mfr.]
- 10) Is the meter zeroed correctly by using sample as blank for the cell used? [Mfr.]
- 11) Is the instrument cap placed correctly on the meter body when the meter is zeroed and when the sample is analyzed? [Mfr.]
- 12) Is the DPD Total Chlorine PermaChem® Powder Pillow mixed into the sample? [HACH 11.1]
- 13) Is the analysis made at least three minutes but not more than six minutes after PermaChem® Powder Pillow addition? [11.2]
- 14) If read-out is flashing [2.20], is sample diluted correctly, then reanalyzed? [1.2 & 2.0]
- 15) Are samples analyzed within 15 minutes of collection? [40 CFR Part 136]
- 16) Is a duplicate sample analyzed after every 20 samples if citing 18th Edition [SM 1020 B.6] or daily for 21st Edition [SM 4020 B.3.c]?
- 17) If duplicate sample is analyzed, is the relative percent difference (RPD) ≤ 20? [18th ed. Table 1020 I; 21st ed. DEQ]

Y	N
X	
X	
X	
X	
X	
X	
X	
X	
X	
X	
X	
X	
X	
X	
X	
X	

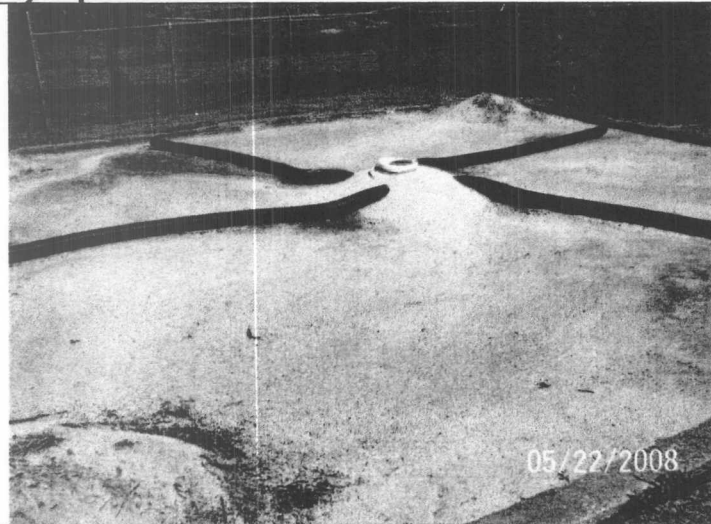
COMMENTS:	
PROBLEMS:	No problems were observed.



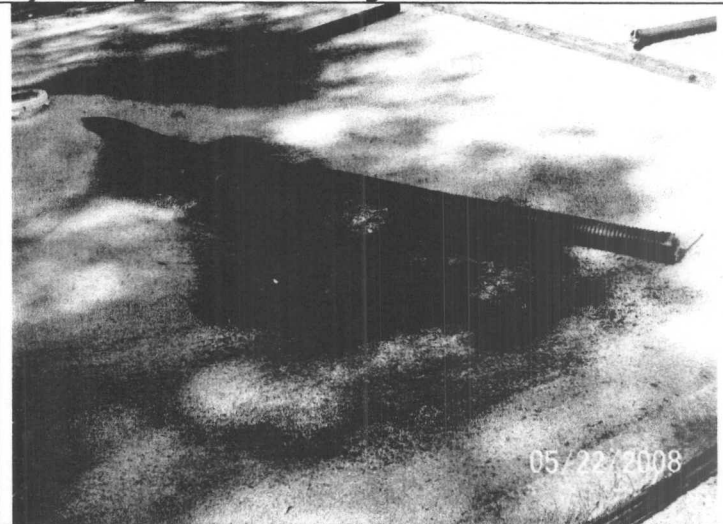
1) Septic tanks



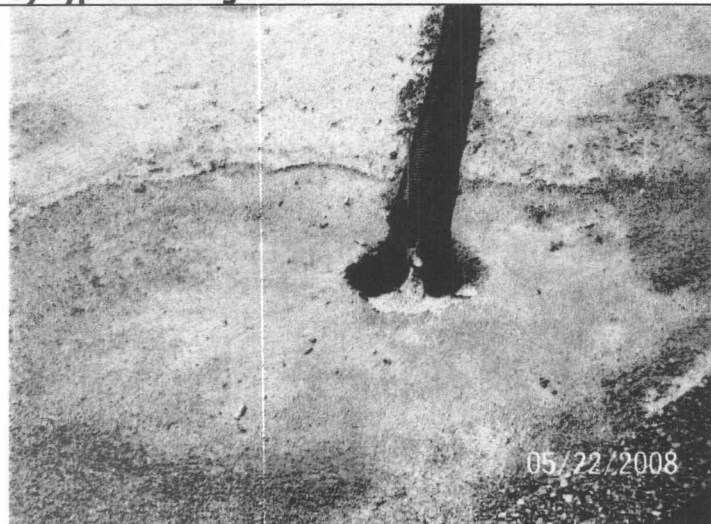
2) Missing corner on dosing tank.



3) Typical dosing arms for sand filters.



4) Moss growing in shaded filter.



5) Evidence of ponding at end of arm.



6) Disinfection units.

Rappahannock High School

Photos by Terry Nelson

Layout by Terry Nelson

Permit VA0064181

May 22 2008

Page 1 of 1

To: Katie Conaway
From: Joan C. Crowther

Date: May 19, 2008
Subject: Planning Statement for Rappahannock County Elementary School
Permit No: VA0022471

Discharge Type: Municipal
Discharge Flow: 0.008 MGD

Receiving Stream: UT to Rush River
Latitude / Longitude: 38°41'10"/ 78°10'37"
Waterbody ID: E05R, RA12

1. Is there monitoring data for the receiving stream?
 - If yes, please attach latest summary.
 - If no, where is the nearest downstream monitoring station.

There is no monitoring data for the receiving stream (UT to Rush River). The unnamed tributary to the Rush River flows into the Rush River, which in turn flows into the Thornton River. The nearest downstream station is 3-THO006.50, located at the Route 729 bridge crossing on the Thornton River. Station 3-THO006.50 is an ambient DEQ monitoring station, and is located approximately 13.09 miles downstream from the outfall of VA0022471.

2. Is the receiving stream on the current 303(d) list?

No.

- If yes, what is the impairment?

NA

- Has the TMDL been prepared?

NA

- If yes, what is the WLA for the discharge?

NA

- If no, what is the schedule for the TMDL?

NA

3. If the answer to (2) above is no, is there a downstream 303(d) listed impairment?

Yes (*Answers given according to the draft 2008 Integrated Assessment*):

- If yes, what is the impairment?

Segment VANE06R_THO02A02: Sufficient exceedances of the single sample maximum *E. coli* bacteria criterion (3 of 13 samples - 23.1%) were recorded at DEQ's ambient water quality monitoring station (3-THO006.50) at the Route 729 crossing to assess this stream segment as not supporting of the recreation use goal.

Thornton River flows into the Hazel River. Downstream impairments on Hazel River include:

Segment VANE07R_HAZ01A04: Sufficient exceedances of the single sample maximum *E. coli* bacteria criterion (6 of 16 samples - 37.5%) were recorded at DEQ's ambient water quality monitoring station (3-HAZ005.98) at the Route 625 crossing to assess this stream segment as not supporting of the recreation use goal.

- Has a TMDL been prepared?

Segment VANE06R_THO02A02: No

Segment VANE07R_HAZ01A04: Yes. TMDL was submitted to EPA and approved on 1/23/2008.

- Will the TMDL include the receiving stream?

The receiving stream assessment unit will not be included in the TMDL for the Thornton River (Segment VANE06R_THO02A02), nor was included in the TMDL for the Hazel River (Segment VANE07R_HAZ01A04). However, it should be noted that all upstream facilities are included during WLA consideration.

- Is there a WLA for the discharge?

The Upper Rappahannock River TMDL included the Hazel River impairment at segment VANE07R_HAZ01A04. All upstream discharges were taken into account when developing the TMDL, thus, VA0022471 was given a **WLA for *E. coli* of 1.40E+10 cfu/year.**

- What is the schedule for the TMDL?

Bacteria TMDL for Thornton River Segment VANE06R_THO02A02 is due 2018.

Bacteria TMDL for Hazel River Segment VANE07R_HAZ01A04 was completed 1/23/2008.

**** Additional information on further downstream impairments:**

- Rappahannock River (VAN-E08R_RPP01A02 and VAN-E08R_RPP02A02) is listed as impaired for *E. coli*, TMDL submitted and approved by EPA 1/23/2008.

- Rappahannock River (VAN-E20E_RPP03A02, VAN-E20E_RPP02A02, VAN-E20E_RPP01A02, VAN-E21E_RPP05A02, VAN-E21E_RPP04A02, VAN-E21E_RPP03A02, VAN-E21E_RPP01A02) is listed as impaired for *E. coli* (TMDL submitted to EPA March 2008) and for PCBs in Fish Tissue (TMDL Due Date – 2016).

4. **Is there monitoring or other conditions that Planning/Assessment needs in the permit?**

There are no additional conditions requested at this time.

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Rappahannock Elementary School WWTP

Permit No.: VA0022471

Receiving Stream: Rush River, UT

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO₃) = 0 mg/L
 90% Temperature (Annual) = 0 deg C
 90% Temperature (Wet season) = deg C
 90% Maximum pH = 0 SU
 10% Maximum pH = SU
 Tier Designation (1 or 2) = 1
 Public Water Supply (PWS) Y/N? = n
 Trout Present Y/N? = n
 Early Life Stages Present Y/N? = y

Stream Flows

1Q10 (Annual) = 0 MGD
 7Q10 (Annual) = 0 MGD
 30Q10 (Annual) = 0 MGD
 1Q10 (Wet season) = 0 MGD
 30Q10 (Wet season) = 0 MGD
 30Q5 = 0 MGD
 Harmonic Mean = 0 MGD
 Annual Average = 0 MGD

Mixing Information

Annual - 1Q10 Mix = 100 %
 - 7Q10 Mix = 100 %
 - 30Q10 Mix = 100 %
 Wet Season - 1Q10 Mix = 100 %
 - 30Q10 Mix = 100 %

Effluent Information

Mean Hardness (as CaCO₃) = 50 mg/L
 90% Temp (Annual) = 25 deg C
 90% Temp (Wet season) = deg C
 90% Maximum pH = 7.74 SU
 10% Maximum pH = SU
 Discharge Flow = 0.008 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	na	2.7E+03	--	--	na	2.7E+03	--	--	--	--	--	--	--	--	--	--	na	2.7E+03
Acrolein	0	--	--	na	7.8E+02	--	--	na	7.8E+02	--	--	--	--	--	--	--	--	--	--	na	7.8E+02
Acrylonitrile ^c	0	--	--	na	6.6E+00	--	--	na	6.6E+00	--	--	--	--	--	--	--	--	--	--	na	6.6E+00
Aldrin ^c	0	3.0E+00	--	na	1.4E-03	3.0E+00	--	na	1.4E-03	--	--	--	--	--	--	--	--	3.0E+00	--	na	1.4E-03
Ammonia-N (mg/l) (Yearly)	0	1.35E+01	1.74E+00	na	--	1.3E+01	1.7E+00	na	--	--	--	--	--	--	--	--	--	1.3E+01	1.7E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	1.35E+01	3.42E+00	na	--	1.3E+01	3.4E+00	na	--	--	--	--	--	--	--	--	--	1.3E+01	3.4E+00	na	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	1.1E+05	--	--	--	--	--	--	--	--	--	--	na	1.1E+05
Antimony	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	--	--	--	--	--	--	--	--	na	4.3E+03
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene ^c	0	--	--	na	7.1E+02	--	--	na	7.1E+02	--	--	--	--	--	--	--	--	--	--	na	7.1E+02
Benzidine ^c	0	--	--	na	5.4E-03	--	--	na	5.4E-03	--	--	--	--	--	--	--	--	--	--	na	5.4E-03
Benzo (a) anthracene ^c	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Benzo (b) fluoranthene ^c	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Benzo (k) fluoranthene ^c	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Benzo (a) pyrene ^c	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Bis(2-Chloroethyl) Ether	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	--	--	--	--	--	--	--	--	na	1.4E+01
Bis(2-Chloroisopropyl) Ether	0	--	--	na	1.7E+05	--	--	na	1.7E+05	--	--	--	--	--	--	--	--	--	--	na	1.7E+05
Bromoform ^c	0	--	--	na	3.6E+03	--	--	na	3.6E+03	--	--	--	--	--	--	--	--	--	--	na	3.6E+03
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	5.2E+03	--	--	--	--	--	--	--	--	--	--	na	5.2E+03
Cadmium	0	1.8E+00	6.6E-01	na	--	1.8E+00	6.6E-01	na	--	--	--	--	--	--	--	--	--	1.8E+00	6.6E-01	na	--
Carbon Tetrachloride ^c	0	--	--	na	4.4E+01	--	--	na	4.4E+01	--	--	--	--	--	--	--	--	--	--	na	4.4E+01
Chlordane ^c	0	2.4E+00	4.3E-03	na	2.2E-02	2.4E+00	4.3E-03	na	2.2E-02	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	2.2E-02
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	2.1E+04

Attachment 6

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane ^c	0	--	--	na	3.4E+02	--	--	na	3.4E+02	--	--	--	--	--	--	--	--	--	--	na	3.4E+02
Chloroform ^c	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	--	--	--	na	2.9E+04
2-Chloronaphthalene	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	--	--	--	--	--	--	--	--	na	4.3E+03
2-Chlorophenol	0	--	--	na	4.0E+02	--	--	na	4.0E+02	--	--	--	--	--	--	--	--	--	--	na	4.0E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	3.2E+02	4.2E+01	na	--	3.2E+02	4.2E+01	na	--	--	--	--	--	--	--	--	--	3.2E+02	4.2E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene ^c	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Copper	0	7.0E+00	5.0E+00	na	--	7.0E+00	5.0E+00	na	--	--	--	--	--	--	--	--	--	7.0E+00	5.0E+00	na	--
Cyanide	0	2.2E+01	5.2E+00	na	2.2E+05	2.2E+01	5.2E+00	na	2.2E+05	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	2.2E+05
DDD ^c	0	--	--	na	8.4E-03	--	--	na	8.4E-03	--	--	--	--	--	--	--	--	--	--	na	8.4E-03
DDE ^c	0	--	--	na	5.9E-03	--	--	na	5.9E-03	--	--	--	--	--	--	--	--	--	--	na	5.9E-03
DDT ^c	0	1.1E+00	1.0E-03	na	5.9E-03	1.1E+00	1.0E-03	na	5.9E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	5.9E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Dibenz(a,h)anthracene ^c	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Dibutyl phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
Dichloromethane (Methylene Chloride) ^c	0	--	--	na	1.6E+04	--	--	na	1.6E+04	--	--	--	--	--	--	--	--	--	--	na	1.6E+04
1,2-Dichlorobenzene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	1.7E+04
1,3-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	2.6E+03
1,4-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	2.6E+03
3,3-Dichlorobenzidine ^c	0	--	--	na	7.7E-01	--	--	na	7.7E-01	--	--	--	--	--	--	--	--	--	--	na	7.7E-01
Dichlorobromomethane ^c	0	--	--	na	4.6E+02	--	--	na	4.6E+02	--	--	--	--	--	--	--	--	--	--	na	4.6E+02
1,2-Dichloroethane ^c	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
1,1-Dichloroethylene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	1.7E+04
1,2-trans-dichloroethylene	0	--	--	na	1.4E+05	--	--	na	1.4E+05	--	--	--	--	--	--	--	--	--	--	na	1.4E+05
2,4-Dichlorophenol	0	--	--	na	7.9E+02	--	--	na	7.9E+02	--	--	--	--	--	--	--	--	--	--	na	7.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane ^c	0	--	--	na	3.9E+02	--	--	na	3.9E+02	--	--	--	--	--	--	--	--	--	--	na	3.9E+02
1,3-Dichloropropane	0	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	--	--	--	--	--	--	--	--	na	1.7E+03
Dieldrin ^c	0	2.4E-01	5.6E-02	na	1.4E-03	2.4E-01	5.6E-02	na	1.4E-03	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	1.4E-03
Diethyl Phthalate	0	--	--	na	1.2E+05	--	--	na	1.2E+05	--	--	--	--	--	--	--	--	--	--	na	1.2E+05
Di-2-Ethylhexyl Phthalate ^c	0	--	--	na	5.9E+01	--	--	na	5.9E+01	--	--	--	--	--	--	--	--	--	--	na	5.9E+01
2,4-Dimethylphenol	0	--	--	na	2.3E+03	--	--	na	2.3E+03	--	--	--	--	--	--	--	--	--	--	na	2.3E+03
Dimethyl Phthalate	0	--	--	na	2.9E+06	--	--	na	2.9E+06	--	--	--	--	--	--	--	--	--	--	na	2.9E+06
Di-n-Butyl Phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
2,4 Dinitrophenol	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	1.4E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	na	7.65E+02	--	--	na	7.7E+02	--	--	--	--	--	--	--	--	--	--	na	7.7E+02
2,4-Dinitrotoluene ^c	0	--	--	na	9.1E+01	--	--	na	9.1E+01	--	--	--	--	--	--	--	--	--	--	na	9.1E+01
Dioxin (2,3,7,8- tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	na	1.2E-06	--	--	na	na	--	--	--	--	--	--	--	--	--	--	na	na
1,2-Diphenylhydrazine ^c	0	--	--	na	5.4E+00	--	--	na	5.4E+00	--	--	--	--	--	--	--	--	--	--	na	5.4E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	2.4E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	2.4E+02
Endosulfan Sulfate	0	--	--	na	2.4E+02	--	--	na	2.4E+02	--	--	--	--	--	--	--	--	--	--	na	2.4E+02
Endrin	0	8.6E-02	3.6E-02	na	8.1E-01	8.6E-02	3.6E-02	na	8.1E-01	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	8.1E-01
Endrin Aldehyde	0	--	--	na	8.1E-01	--	--	na	8.1E-01	--	--	--	--	--	--	--	--	--	--	na	8.1E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	--	--	--	--	--	--	--	--	na	2.9E+04
Fluoranthene	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
Fluorene	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	1.4E+04
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor ^C	0	5.2E-01	3.8E-03	na	2.1E-03	5.2E-01	3.8E-03	na	2.1E-03	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	2.1E-03
Heptachlor Epoxide ^C	0	5.2E-01	3.8E-03	na	1.1E-03	5.2E-01	3.8E-03	na	1.1E-03	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	1.1E-03
Hexachlorobenzene ^C	0	--	--	na	7.7E-03	--	--	na	7.7E-03	--	--	--	--	--	--	--	--	--	--	na	7.7E-03
Hexachlorobutadiene ^C	0	--	--	na	5.0E+02	--	--	na	5.0E+02	--	--	--	--	--	--	--	--	--	--	na	5.0E+02
Hexachlorocyclohexane																					
Alpha-BHC ^C	0	--	--	na	1.3E-01	--	--	na	1.3E-01	--	--	--	--	--	--	--	--	--	--	na	1.3E-01
Hexachlorocyclohexane																					
Beta-BHC ^C	0	--	--	na	4.6E-01	--	--	na	4.6E-01	--	--	--	--	--	--	--	--	--	--	na	4.6E-01
Hexachlorocyclohexane																					
Gamma-BHC ^C (Lindane)	0	9.5E-01	na	na	6.3E-01	9.5E-01	--	na	6.3E-01	--	--	--	--	--	--	--	--	9.5E-01	--	na	6.3E-01
Hexachlorocyclopentadiene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	--	--	--	--	--	--	--	--	na	1.7E+04
Hexachloroethane ^C	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene ^C	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	--	--	--	--	--	--	--	--	na	4.9E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone ^C	0	--	--	na	2.6E+04	--	--	na	2.6E+04	--	--	--	--	--	--	--	--	--	--	na	2.6E+04
Kepon	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.9E+01	5.6E+00	na	--	4.9E+01	5.6E+00	na	--	--	--	--	--	--	--	--	--	4.9E+01	5.6E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	na	5.1E-02	1.4E+00	7.7E-01	na	5.1E-02	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	na	5.1E-02
Methyl Bromide	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Monochlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	--	--	--	--	--	--	--	--	na	2.1E+04
Nickel	0	1.0E+02	1.1E+01	na	4.6E+03	1.0E+02	1.1E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.0E+02	1.1E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
N-Nitrosodimethylamine ^C	0	--	--	na	8.1E+01	--	--	na	8.1E+01	--	--	--	--	--	--	--	--	--	--	na	8.1E+01
N-Nitrosodiphenylamine ^C	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
N-Nitrosodi-n-propylamine ^C	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	--	--	--	--	--	--	--	--	na	1.4E+01
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB-1016	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1221	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1232	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1242	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1248	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1254	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB-1260	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	--	--	--	--	--	--	--	--	1.4E-02	na	--
PCB Total ^C	0	--	--	na	1.7E-03	--	--	na	1.7E-03	--	--	--	--	--	--	--	--	--	--	na	1.7E-03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Pentachlorophenol ^C	0	7.7E-03	5.9E-03	na	8.2E+01	7.7E-03	5.9E-03	na	8.2E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	8.2E+01
Phenol	0	--	--	na	4.6E+06	--	--	na	4.6E+06	--	--	--	--	--	--	--	--	--	--	na	4.6E+06
Pyrene	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
Radionuclides (pCi/l except Beta/Photon)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity Beta and Photon Activity (mrem/yr)	0	--	--	na	1.5E+01	--	--	na	1.5E+01	--	--	--	--	--	--	--	--	--	--	na	1.5E+01
Strontium-90	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	4.0E+00
Tritium	0	--	--	na	8.0E+00	--	--	na	8.0E+00	--	--	--	--	--	--	--	--	--	--	na	8.0E+00
Selenium	0	--	--	na	2.0E+04	--	--	na	2.0E+04	--	--	--	--	--	--	--	--	--	--	na	2.0E+04
Silver	0	2.0E+01	5.0E+00	na	1.1E+04	2.0E+01	5.0E+00	na	1.1E+04	--	--	--	--	--	--	--	--	2.0E+01	5.0E+00	na	1.1E+04
Sulfate	0	1.0E+00	--	na	--	1.0E+00	--	na	--	--	--	--	--	--	--	--	--	1.0E+00	--	na	--
1,1,2,2-Tetrachloroethane ^C	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Tetrachloroethylene ^C	0	--	--	na	1.1E+02	--	--	na	1.1E+02	--	--	--	--	--	--	--	--	--	--	na	1.1E+02
Thallium	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Toluene	0	--	--	na	6.3E+00	--	--	na	6.3E+00	--	--	--	--	--	--	--	--	--	--	na	6.3E+00
Total dissolved solids	0	--	--	na	2.0E+05	--	--	na	2.0E+05	--	--	--	--	--	--	--	--	--	--	na	2.0E+05
Toxaphene ^C	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Tributyltin	0	7.3E-01	2.0E-04	na	--	7.3E-01	2.0E-04	na	--	--	--	--	--	--	--	--	--	7.3E-01	2.0E-04	na	7.3E-03
1,2,4-Trichlorobenzene	0	4.6E-01	6.3E-02	na	9.4E+02	4.6E-01	6.3E-02	na	9.4E+02	--	--	--	--	--	--	--	--	4.6E-01	6.3E-02	na	--
1,1,2-Trichloroethane ^C	0	--	--	na	9.4E+02	--	--	na	9.4E+02	--	--	--	--	--	--	--	--	--	--	na	9.4E+02
Trichloroethylene ^C	0	--	--	na	4.2E+02	--	--	na	4.2E+02	--	--	--	--	--	--	--	--	--	--	na	4.2E+02
2,4,6-Trichlorophenol ^C	0	--	--	na	8.1E+02	--	--	na	8.1E+02	--	--	--	--	--	--	--	--	--	--	na	8.1E+02
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	6.5E+01	--	--	na	6.5E+01	--	--	--	--	--	--	--	--	--	--	na	6.5E+01
Vinyl Chloride ^C	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Zinc	0	--	--	na	6.1E+01	--	--	na	6.1E+01	--	--	--	--	--	--	--	--	--	--	na	6.1E+01
	0	6.5E+01	6.6E+01	na	6.9E+04	6.5E+01	6.6E+01	na	6.9E+04	--	--	--	--	--	--	--	--	6.5E+01	6.6E+01	na	6.9E+04

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = $(0.25(WQC - \text{background conc.}) + \text{background conc.})$ for acute and chronic
= $(0.1(WQC - \text{background conc.}) + \text{background conc.})$ for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 3Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Metal	Target Value (SSTV)
Antimony	4.3E+03
Arsenic	9.0E+01
Barium	na
Cadmium	3.9E-01
Chromium III	2.5E+01
Chromium VI	6.4E+00
Copper	2.8E+00
Iron	na
Lead	3.4E+00
Manganese	na
Mercury	5.1E-02
Nickel	6.8E+00
Selenium	3.0E+00
Silver	4.2E-01
Zinc	2.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

0.008 MGD DISCHARGE FLOW - STREAM MIX PER "Mix.exe"

Discharge Flow Used for WQS-WLA Calculations (MGD) 0.008					<u>Ammonia - Dry Season - Acute</u>		<u>Ammonia - Dry Season - Chronic</u>	
<u>Stream Flows</u>		<u>Total Mix Flows</u>			90th Percentile pH (SU)	7.740	90th Percentile Temp. (deg C)	25.000
<u>Allocated to Mix (MGD)</u>		<u>Stream + Discharge (MGD)</u>			(7.204 - pH)	-0.536	90th Percentile pH (SU)	7.740
<u>Dry Season</u>	<u>Wet Season</u>	<u>Dry Season</u>	<u>Wet Season</u>		(pH - 7.204)	0.536	MIN	1.450
1Q10	0.000	0.000	0.008	0.008	Trout Present Criterion (mg N/l	9.006	MAX	25.000
7Q10	0.000	N/A	0.008	N/A	Trout Absent Criterion (mg N/L	13.485	(7.688 - pH)	-0.052
30Q10	0.000	0.000	0.008	0.008	Trout Present?	n	(pH - 7.688)	0.052
30Q5	0.000	N/A	0.008	N/A	Effective Criterion (mg N/L)	13.485	Early LS Present Criterion (mg N	1.740
Harm. Mean	0.000	N/A	0.008	N/A			Early LS Absent Criterion (mg N	1.740
Annual Avg.	0.000	N/A	0.008	N/A			Early Life Stages Present?	y
							Effective Criterion (mg N/L)	1.740
<u>Stream/Discharge Mix Values</u>					<u>Ammonia - Wet Season - Acute</u>		<u>Ammonia - Wet Season - Chronic</u>	
		<u>Dry Season</u>	<u>Wet Season</u>		90th Percentile pH (SU)	7.740	90th Percentile Temp. (deg C)	0.000
1Q10 90th% Temp. Mix (deg C)		25.000	0.000		(7.204 - pH)	-0.536	90th Percentile pH (SU)	7.740
30Q10 90th% Temp. Mix (deg C)		25.000	0.000		(pH - 7.204)	0.536	MIN	2.850
1Q10 90th% pH Mix (SU)		7.740	7.740		Trout Present Criterion (mg N/l	9.006	MAX	7.000
30Q10 90th% pH Mix (SU)		7.740	7.740		Trout Absent Criterion (mg N/L	13.485	(7.688 - pH)	-0.052
1Q10 10th% pH Mix (SU)		0.000	N/A		Trout Present?	n	(pH - 7.688)	0.052
7Q10 10th% pH Mix (SU)		0.000	N/A		Effective Criterion (mg N/L)	13.485	Early LS Present Criterion (mg N	3.419
							Early LS Absent Criterion (mg N	5.552
							Early Life Stages Present?	y
							Effective Criterion (mg N/L)	3.419
		<u>Calculated</u>	<u>Formula Inputs</u>					
1Q10 Hardness (mg/L as CaCO3)		50.0	50.0					
7Q10 Hardness (mg/L as CaCO3)		50.0	50.0					

0.008 MGD DISCHARGE FLOW - COMPLETE STREAM MIX

Discharge Flow Used for WQS-WLA Calculations (MGD) 0.008					<u>Ammonia - Dry Season - Acute</u>		<u>Ammonia - Dry Season - Chronic</u>	
100% Stream Flows		Total Mix Flows			90th Percentile pH (SU)	7.740	90th Percentile Temp. (deg C)	25.000
<u>Allocated to Mix (MGD)</u>		<u>Stream + Discharge (MGD)</u>			(7.204 - pH)	-0.536	90th Percentile pH (SU)	7.740
<u>Dry Season</u>	<u>Wet Season</u>	<u>Dry Season</u>	<u>Wet Season</u>		(pH - 7.204)	0.536	MIN	1.450
1Q10	0.000	0.000	0.008	0.008	Trout Present Criterion (mg N/l	9.006	MAX	25.000
7Q10	0.000	N/A	0.008	N/A	Trout Absent Criterion (mg N/L	13.485	(7.688 - pH)	-0.052
30Q10	0.000	0.000	0.008	0.008	Trout Present?	n	(pH - 7.688)	0.052
30Q5	0.000	N/A	0.008	N/A	Effective Criterion (mg N/L)	13.485	Early LS Present Criterion (mg N	1.740
Harm. Mean	0.000	N/A	0.008	N/A			Early LS Absent Criterion (mg N/	1.740
Annual Avg.	0.000	N/A	0.008	N/A			Early Life Stages Present?	y
							Effective Criterion (mg N/L)	1.740
<u>Stream/Discharge Mix Values</u>					<u>Ammonia - Wet Season - Acute</u>		<u>Ammonia - Wet Season - Chronic</u>	
		<u>Dry Season</u>	<u>Wet Season</u>		90th Percentile pH (SU)	7.740	90th Percentile Temp. (deg C)	0.000
1Q10 90th% Temp. Mix (deg C)		25.000	0.000		(7.204 - pH)	-0.536	90th Percentile pH (SU)	7.740
30Q10 90th% Temp. Mix (deg C)		25.000	0.000		(pH - 7.204)	0.536	MIN	2.850
1Q10 90th% pH Mix (SU)		7.740	7.740		Trout Present Criterion (mg N/l	9.006	MAX	7.000
30Q10 90th% pH Mix (SU)		7.740	7.740		Trout Absent Criterion (mg N/L	13.485	(7.688 - pH)	-0.052
1Q10 10th% pH Mix (SU)		0.000	N/A		Trout Present?	n	(pH - 7.688)	0.052
7Q10 10th% pH Mix (SU)		0.000	N/A		Effective Criterion (mg N/L)	13.485	Early LS Present Criterion (mg N	3.419
							Early LS Absent Criterion (mg N/	5.552
							Early Life Stages Present?	y
							Effective Criterion (mg N/L)	3.419

Rappahannock Elementary School pH DMR (min and max values) data from November 2003 through November 2008

Due	Monitoring Month	CONC MIN & MAX	90th percentile ranking
12/10/03	November-03	6.87	8.37
12/10/03	November-03	7.61	8.10
1/10/04	December-03	6.95	7.96
1/10/04	December-03	7.20	7.87
2/10/04	January-04		7.83
2/10/04	January-04		7.81
3/10/04	February-04		7.80
3/10/04	February-04		7.8
4/10/04	March-04	6.64	7.78
4/10/04	March-04	7.20	7.74
5/10/04	April-04	6.52	7.72
5/10/04	April-04	7.45	7.7
6/10/04	May-04	7.01	7.69
6/10/04	May-04	7.57	7.68
7/10/04	June-04	6.94	7.66
7/10/04	June-04	7.81	7.65
8/10/04	July-04		7.65
8/10/04	July-04		7.64
9/10/04	August-04		7.63
9/10/04	August-04		7.62
10/10/04	September-04	7.33	7.61
10/10/04	September-04	8.37	7.61
11/10/04	October-04	7.48	7.60
11/10/04	October-04	7.63	7.6
12/10/04	November-04	7.23	7.6
12/10/04	November-04	7.80	7.59
1/10/05	December-04	7.00	7.59
1/10/05	December-04	7.56	7.57
2/10/05	January-05	6.89	7.56
2/10/05	January-05	7.43	7.50
3/10/05	February-05	6.83	7.49
3/10/05	February-05	7.23	7.48
4/10/05	March-05	6.84	7.48
4/10/05	March-05	7.39	7.48
5/10/05	April-05	6.75	7.47
5/10/05	April-05	7.47	7.45
6/10/05	May-05	7.15	7.43
6/10/05	May-05	7.96	7.40
7/10/05	June-05		7.40
7/10/05	June-05		7.39
8/10/05	July-05		7.35
8/10/05	July-05		7.33
9/10/05	August-05		7.30
9/10/05	August-05		7.3
10/10/05	September-05		7.28
10/10/05	September-05		7.26
11/10/05	October-05	6.80	7.23
11/10/05	October-05	7.35	7.23
12/10/05	November-05	6.97	7.23
12/10/05	November-05	7.69	7.23
1/10/06	December-05	6.93	7.21

90th percentile

Rappahannock Elementary School pH DMR (min and max values) data from November 2003 through November 2008

Due	Monitoring Month	CONC MIN & MAX	90th percentile ranking
1/10/06	December-05	7.30	7.20
2/10/06	January-06	6.76	7.20
2/10/06	January-06	7.13	7.20
3/10/06	February-06	6.65	7.2
3/10/06	February-06	7.07	7.2
4/10/06	March-06	6.73	7.18
4/10/06	March-06	7.23	7.15
5/10/06	April-06	6.95	7.13
5/10/06	April-06	7.40	7.12
6/10/06	May-06	7.18	7.10
6/10/06	May-06	7.68	7.09
7/10/06	June-06	7.48	7.07
7/10/06	June-06	7.65	7.03
8/10/06	July-06		7.01
8/10/06	July-06		7.01
9/10/06	August-06		7.00
9/10/06	August-06		7.00
10/10/06	September-06	7.26	6.99
10/10/06	September-06	7.74	6.97
11/10/06	October-06	7.20	6.95
11/10/06	October-06	8.10	6.95
12/10/06	November-06	7.09	6.94
12/10/06	November-06	7.65	6.93
1/10/07	December-06	7.03	6.92
1/10/07	December-06	7.40	6.89
2/10/07	January-07	6.99	6.87
2/10/07	January-07	7.59	6.84
3/10/07	February-07	7.00	6.84
3/10/07	February-07	7.60	6.83
4/10/07	March-07	6.92	6.80
4/10/07	March-07	7.64	6.76
5/10/07	April-07	6.84	6.75
5/10/07	April-07	7.49	6.73
6/10/07	May-07	7.12	6.65
6/10/07	May-07	7.78	6.64
7/10/07	June-07	7.48	6.52
7/10/07	June-07	7.83	6.3
8/10/07	July-07		
8/10/07	July-07		
9/10/07	August-07		
9/10/07	August-07		
10/10/07	September-07		
10/10/07	September-07		
11/10/07	October-07		
11/10/07	October-07		
12/10/07	November-07	7.50	
12/10/07	November-07	7.87	
1/10/08	December-07	7.23	
1/10/08	December-07	7.72	
2/10/08	January-08	7.21	
2/10/08	January-08	7.66	
3/10/08	February-08	7.28	

Rappahannock Elementary School pH DMR (min and max values) data from November 2003 through November 2008

Due	Monitoring Month	CONC MIN & MAX	90th percentile ranking
3/10/08	February-08	7.62	
4/10/08	March-08	7.10	
4/10/08	March-08	7.59	
5/10/08	April-08	7.01	
5/10/08	April-08	7.61	
6/10/08	May-08	6.3	
6/10/08	May-08	7.6	
7/10/08	June-08		
7/10/08	June-08		
8/10/08	July-08		
8/10/08	July-08		
9/10/08	August-08		
9/10/08	August-08		
10/10/08	September-08	7.3	
10/10/08	September-08	7.7	
11/10/08	October-08	7.2	
11/10/08	October-08	7.8	
12/10/08	November-08	7.2	
12/10/08	November-08	7.6	

Ammonia Calculation 1 9 09

1/9/2009 2:33:46 PM

Facility = Rappahannock Elementary School WWTP
Chemical = ammonia
Chronic averaging period = 30
WLAA = 13
WLAC =
Q.L. = .2
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average = 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 13
Average Weekly limit = 13
Average Monthly Limit = 13

The data are:

9

Units of measurement are mg/L.

Define Point of Interest

38,41,10.0 -78,10,37.0

is the Search Point

Search Point

- ☒ Change to "clicked" map point
☐ Fixed at 38,41,10.0 - 78,10,37.0

Show Position Rings

- ☒ Yes ☐ No

1 mile and 1/4 mile at the Search Point

Show Search Area

- ☒ Yes ☐ No

2 miles

Search Point is at map center


Base Map Choices

Topography ☒

Map Overlay Choices

Current List: Position, Search

Map Overlay Legend

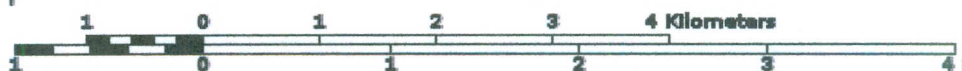
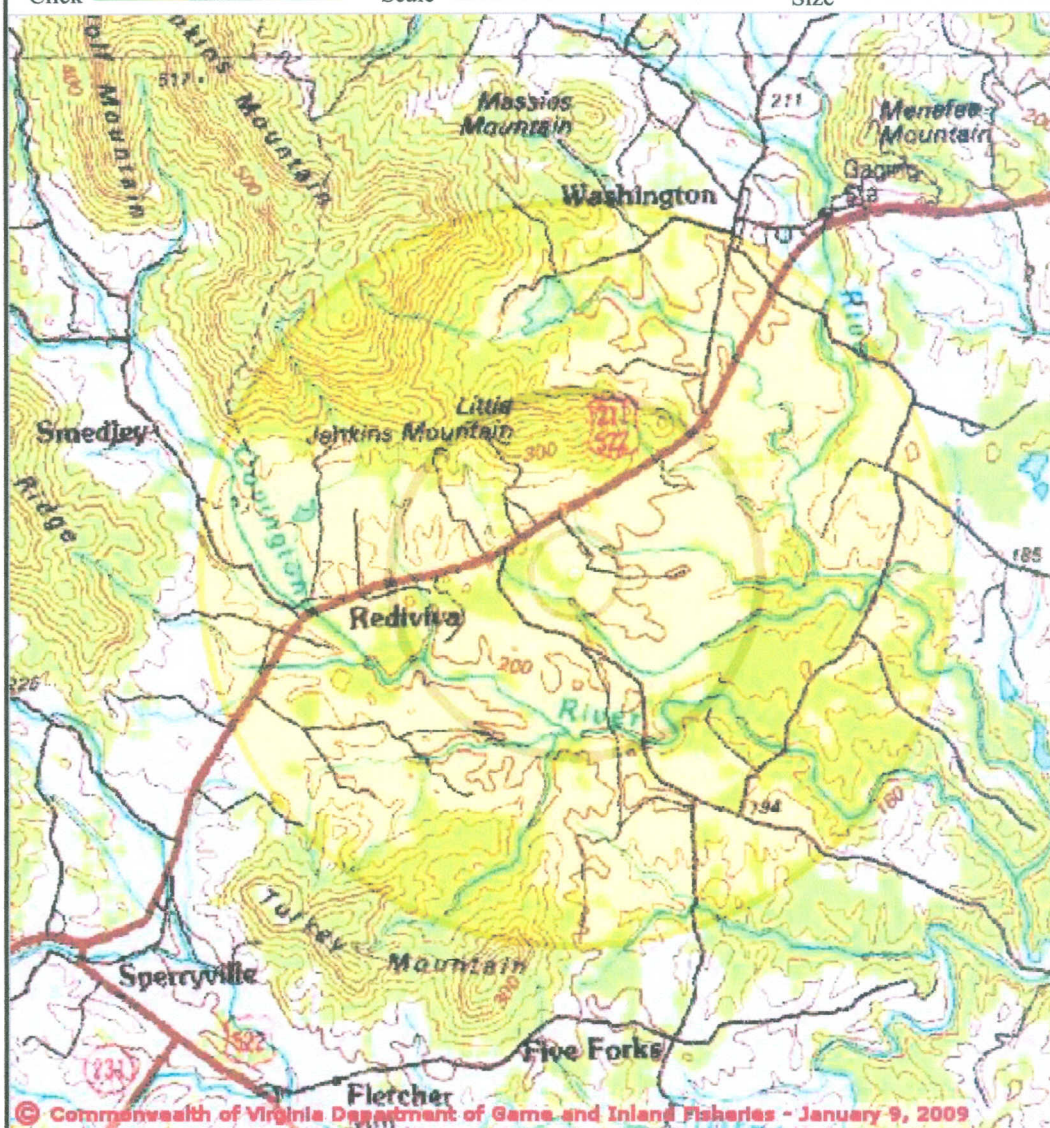
 **Position Rings**
1 mile and 1/4 mile at the Search Point

 **2 mile radius Search Area**

Map Click

Map Scale

Screen Size

Point of Search 38,41,10.0 -78,10,37.0

Map Location 38,41,10.0 -78,10,37.0

Attachment 9

Select **Coordinate System:** ☒ Degrees, Minutes, Seconds Latitude - Longitude

☐ Decimal Degrees Latitude - Longitude

☐ Meters UTM NAD83 East North Zone

☐ Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see terraser-ver-usa.com for details)

Map projection is UTM Zone 17 NAD 1983 with left 740775 and top 4290540. Pixel size is 16 meters. Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 64 columns by 600 rows for a total of 360000 pixels. The map display represents 9600 meters east to west, 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 31501 feet east to west by 31501 feet north to south for a total of 35.5 square miles.

Black and white aerial photography acquired near 1990 and topographic maps are from the United States Department of the Interior, United States Geological Survey.

Shaded topographic maps are from TOPO! ©2006 National Geographic

<http://www.nationalgeographic.com/topo>

Color aerial photography acquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network

All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries

map assembled 2009-01-09 13:04:18 (qa/qc May 21, 2008 10:49 - tn=217380 dist=3218 I)

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Virginia Department of Game and Inland Fisheries

1/9/2009 1:06:37 PM

Fish and Wildlife Information Service

VaFWIS Initial Project Assessment Report

Compiled on

Help

1/9/2009, 1:06:37 PM

Known or likely to occur within a 2 mile radius of 38,41,10.

78,10,37.

in 157 Rappahannock County, VA

393 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 26) (26 species with Status* or Tier I**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
020045	FESE	I	Salamander, Shenandoah	Plethodon shenandoah		BOVA
040096	ST	I	Falcon, peregrine	Falco peregrinus		BOVA
040129	ST	I	Sandpiper, upland	Bartramia longicauda		BOVA
040293	ST	I	Shrike, loggerhead	Lanius ludovicianus	Yes	BBA,BBS,BOVA
100155	FSST	I	Skipper, Appalachian grizzled	Pyrgus wyandot		BOVA
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
100248	FS	I	Fritillary, regal	Speyeria idalia idalia		BOVA
040306	SS	I	Warbler, golden-winged	Vermivora chrysoptera		BOVA
040266	SS	II	Wren, winter	Troglodytes troglodytes		BOVA
030063	CC	III	Turtle, spotted	Clemmys guttata		BOVA
040094	SS	III	Harrier, northern	Circus cyaneus		BOVA
040204	SS	III	Owl, barn	Tyto alba pratincola	Yes	BBA,BOVA
030012	CC	IV	Rattlesnake, timber	Crotalus horridus		BOVA
040264	SS	IV	Creeper, brown	Certhia americana		BOVA
040364	SS		Dickcissel	Spiza americana		BOVA
040032	SS		Egret, great	Ardea alba egretta		BOVA
040366	SS		Finch, purple	Carpodacus purpureus		BOVA
040285	SS		Kinglet, golden-crowned	Regulus satrapa		BOVA
040112	SS		Moorhen, common	Gallinula chloropus cachinnans		BOVA
040262	SS		Nuthatch, red-breasted	Sitta canadensis		BOVA
040189	SS		Tern, Caspian	Sterna caspia		BOVA

040278	SS		Thrush, hermit	<i>Catharus guttatus</i>	BOVA
040314	SS		Warbler, magnolia	<i>Dendroica magnolia</i>	BOVA
050045	SS		Otter, northern river	<i>Lontra canadensis lataxina</i>	BOVA
040225		I	Sapsucker, yellow-bellied	<i>Sphyrapicus varius</i>	BOVA
040319		I	Warbler, black-throated green	<i>Dendroica virens</i>	BOVA

To view **All 393 species** View 393

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; SC=State Candidate; CC=Collection Concern; SS=State Special Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

Anadromous Fish Use Streams

N/A

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters

N/A

Cold Water Stream Survey (Trout Streams) Summary of Recent Observations

N/A

Public Holdings:

N/A

audit no. 217380 1/9/2009 1:06:37 PM Virginia Fish and Wildlife Information Service
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Criteria and WLA Calculations for Ammonia based upon freshwater criteria (Nontidal Only)

Date : 09/10/03

Facility : Rappahannock Elem School STP
 Permit Number : VA0022471
 Comments :

pH	=	7.80	S.U.
Temperature	=	25.00	C
Trout Present (Y or N)	=	N	
Early Life Stages Present (Y or N)	=	N	
1Q10	=	0.000	MGD
7Q10	=	0.000	MGD
30Q5	=	0.00	MGD
Harmonic Mean	=	0.00	MGD
Design Flow	=	0.01	MGD
Percentage of 1Q10 by MIX.exe	=	100.00%	NA MGD
Percentage of 7Q10 by MIX.exe	=	100.00%	NA MGD
Water Body Tier	=	1	(1=No Antideg; 2= Antideg)

Acute - Trout Present

$$\begin{aligned} \text{Calculated Ammonia Criteria} &= (0.275 / 1 + 10^{(7.204-pH)}) + (39 / 1 + 10^{(6.41-7.204)}) \\ \text{Calculated Ammonia Criteria} &= 8.11 \end{aligned}$$

Acute - Trout Absent

$$\begin{aligned} \text{Calculated Ammonia Criteria} &= (0.411 / 1 + 10^{(7.204-pH)}) + (58.4 / 1 + 10^{(6.41-7.204)}) \\ \text{Calculated Ammonia Criteria} &= 12.14 \end{aligned}$$

Total Acute Ammonia Criteria = 12.14 mg/l as N

Chronic - Early Life Stages Present

$$\begin{aligned} \text{Calculated Ammonia Criteria} &= ((0.0577 / 1 + 10^{(7.686-pH)}) + (2.487 / 1 + 10^{(6.41-7.686)})) \times \\ \text{MIN} &= 2.85 \text{ or } 1.45 \times 10(0.028(25\text{-temp}), \text{ which ever is less} \end{aligned}$$

Calculated MIN = 1.45

MIN Comparison = 1.45 Calculated value is less than 2.85

Calculated Ammonia Criteria = 1.62

Chronic - Early Life Stages Abscent

$$\begin{aligned} \text{Calculated Ammonia Criteria} &= ((0.0577 / 1 + 10^{(7.686-pH)}) + (2.487 / 1 + 10^{(6.41-7.686)})) \times (\\ \text{MAX} &= \text{Temp. in C or 7, whichever is greater} \end{aligned}$$

MAX Comparison = 25.00 Temperature value enter will be used

Calculated Ammonia Criteria = 1.62

Total Chronic Ammonia Criteria = 1.62 mg/l as N

Parameters	Instream Background	Acute Criteria (mg/l)	Acute Baseline (mg/l)	Acute WLA (mg/l)	Antideg Acute WLA (mg/l)	SSTV = 0.4 X aWLA (mg/l)	Chronic Criteria (mg/l)	Chronic Baseline (mg/l)	Chronic WLA (mg/l)	Antideg Chronic WLA (mg/l)	SSTV = 0.6 X cWLA (mg/l)
Ammonia	ND	12.14	NA	12.14	NA	4.86	1.62	NA	1.62	NA	0.97

Notes:

- 1) ND = No Data available, and therefore the background concentrations are assumed to be Zero.
- 2) Acute Criteria = One-hour average concentration of total ammonia nitrogen in freshwater shall not exceed, more than once every three years on the average.
- 3) Chronic Criteria = the 30-day average concentration of total ammonia nitrogen where early life stages of fish are present in freshwater shall not exceed, more than once every three ,
- 4) Acute criteria/WLA based on 1Q10 flow; chronic criteria/WLA based on 7Q10 flow.

Facility = Rappahannock Elementary School

Chemical = Ammonia as N

Chronic averaging period = 30

WLAa = 12.1

WLAc =

Q.L. = 0.2

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 9

Variance = 29.16

C.V. = 0.6

97th percentile daily values = 21.9007

97th percentile 4 day average = 14.9741

97th percentile 30 day average = 10.8544

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 12.1

Average Weekly limit = 12.1

Average Monthly Limit = 12.1

The data are:

TRC Calculation 1 9 09

1/9/2009 2:38:22 PM

Facility = Rappahannock Elementary School WWTP
Chemical = Total Residual Chlorine
Chronic averaging period = 4
WLAa = 19
WLAC = 11
Q.L. = 100
samples/mo. = 30
samples/wk. = 8

Summary of Statistics:

observations = 1
Expected Value = 200
Variance = 14400
C.V. = 0.6
97th percentile daily values = 486.683
97th percentile 4 day average = 332.758
97th percentile 30 day average = 241.210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 16.0883226245855
Average Weekly limit = 9.59676626920107
Average Monthly Limit = 7.9737131838758

The data are:

200

Unit of measurement are in ug/l.

MEMORANDUM

Attachment 9

State Water Control Board

2111 North Hamilton Street

P.O. Box 11143

Richmond, VA. 23230

SUBJECT: Rappahannock County Elementary School - SAA for NPDES

TO: George Whitaker (BAT)

FROM: Gary N. Moore

Gary

DATE: June 17, 1974

COPIES: Al Pollock (BAT), John T. Hopkins (NRO)

Quads Used: Washington, Virginia

Q of plant: .008 MGD

X from POD to unnamed tributary of Rush River = 1.4 mi

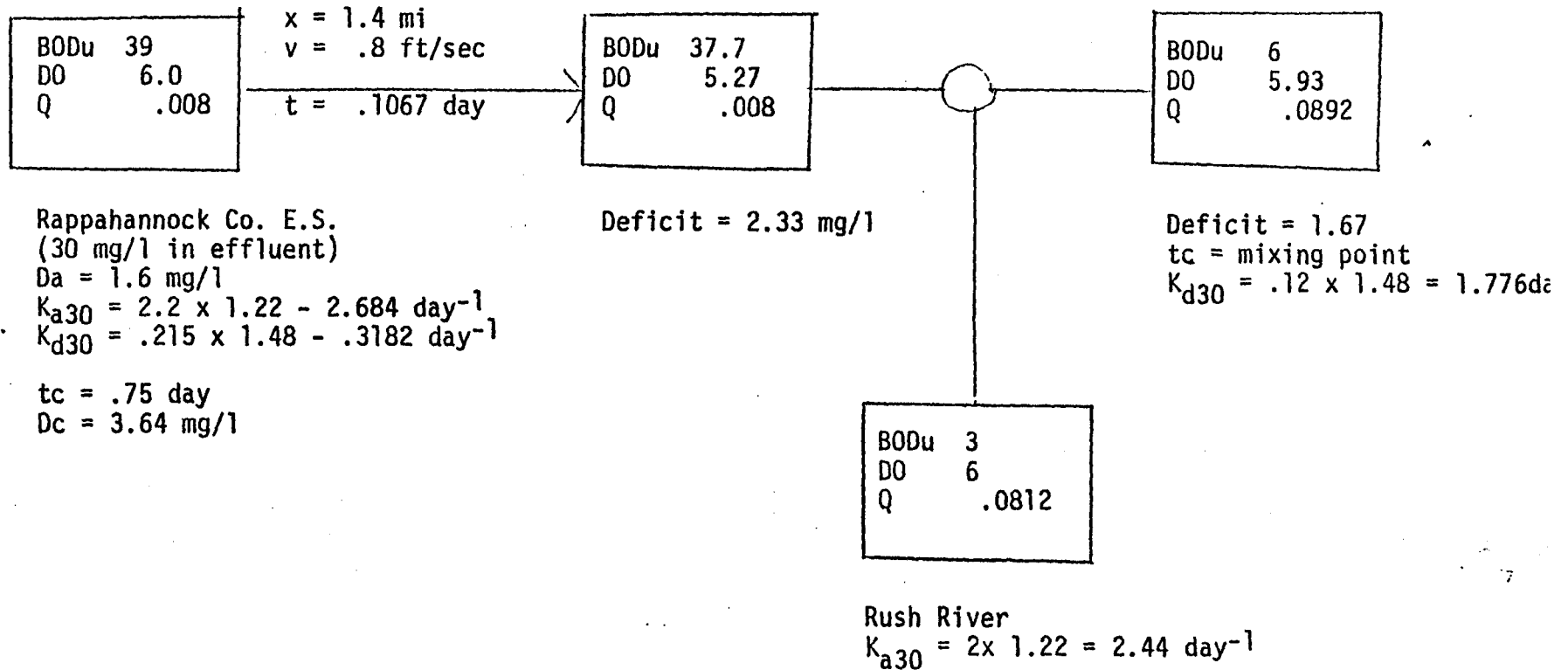
D.A. of Rush River above its confluence with unnamed tributary = 10.5 sq. mi

Critical Discharge = .012 cfs/sq. mi (Thornton River near Laurel Mills)

Q of Rush River at its confluence with unnamed tributary = $\frac{10.5 \times .012}{1.55} = .0812$ MGD

GNM/by

Rappahannock County Elementary School NPDES SAA
6/17/74



Meets stream standards in unnamed tributary. Meets non-degradation policy in Rush River.

VA0022471 Rappahannock County Elementary School

Due	Outfall	ND?	Rec'd	Par #	Parameter Description	QTY AVG	Lim Avg	QTY MAX	Lim Max	Qty Unit	CONC MIN	Lim Min	CONC AVG	Lim Avg	CONC MAX	Lim Max	Conc Unit	Ex	Freq	Comments
12/10/08	001	N	12/11/08	120	E.COLI		*****		*****			*****	1	NL	1	NL	#10001	0	M	
11/10/08	001	N	11/12/08	120	E.COLI		*****		*****			*****	1	NL	1	NL	#10001	0	M	
10/10/08	001	N	10/14/08	120	E.COLI		*****		*****			*****	1	NL	1	NL	#10001	0	M	
9/10/08	001	Y	9/10/08	120	E.COLI		*****		*****			*****		NL		NL	#10001		M	
8/10/08	001	Y	8/11/08	120	E.COLI		*****		*****			*****		NL		NL	#10001		M	
7/10/08	001	Y	7/10/08	120	E.COLI		*****		*****			*****		NL		NL	#10001		M	
6/10/08	001	N	6/12/08	120	E.COLI		*****		*****			*****	1	NL	1	NL	#10001	0	M	
5/10/08	001	N	5/12/08	120	E.COLI		*****		*****			*****	1	NL	1	NL	#10001	0	M	
4/10/08	001	N	4/10/08	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
3/10/08	001	N	3/10/08	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
2/10/08	001	N	2/11/08	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	revised 2/21/08 007, 157 Ex, orig 2/25/08
1/10/08	001	N	1/11/08	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
12/10/07	001	N	12/11/07	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
11/10/07	001	Y	11/13/07	120	E.COLI		*****		*****			*****		NL		NL	#10001		M	
10/10/07	001	Y	10/11/07	120	E.COLI		*****		*****			*****		NL		NL	#10001		M	
9/10/07	001	Y	9/10/07	120	E.COLI		*****		*****			*****		NL		NL	#10001		M	
8/10/07	001	Y	8/13/07	120	E.COLI		*****		*****			*****		NL		NL	#10001		M	
7/10/07	001	N	7/11/07	120	E.COLI		*****		*****			*****	7	NL	7	NL	#10001	0	M	
6/10/07	001	N	6/11/07	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
5/10/07	001	N	5/9/07	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	fax ltr of explanation 5/22/07
4/10/07	001	N	4/10/07	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
3/10/07	001	N	3/12/07	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
2/10/07	001	N	2/12/07	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
1/10/07	001	N	1/11/07	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
12/10/06	001	N	12/11/06	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
11/10/06	001	N	11/13/06	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	revised 12/11/06
10/10/06	001	N	10/11/06	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
9/10/06	001	Y	9/11/06	120	E.COLI		*****		*****			*****		NL		NL	#10001		M	
8/10/06	001	Y	8/11/06	120	E.COLI		*****		*****			*****		NL		NL	#10001		M	
7/10/06	001	N	7/11/06	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
6/10/06	001	N	6/9/06	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
5/10/06	001	N	5/11/06	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
4/10/06	001	N	4/11/06	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
3/10/06	001	N	3/10/06	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
2/10/06	001	N	2/13/06	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
1/10/06	001	N	1/10/06	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
12/10/05	001	N	12/9/05	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
11/10/05	001	N	11/10/05	120	E.COLI		*****		*****			*****	2	NL	2	NL	#10001	0	M	
10/10/05	001	Y	10/11/05	120	E.COLI		*****		*****			*****		NL		NL	#10001		M	

Due	Outfall	ND?	Rec'd	Par #	Parameter Description	QTY AVG	Lim Avg	QTY MAX	Lim Max	Qty Unit	CONC MIN	Lim Min	CONC AVG	Lim Avg	CONC MAX	Lim Max	Conc Unit	Ex	Freq	Comments
9/10/05	001	Y	9/12/05	120	E.COLI	*****		*****			*****			NL		NL			M	
8/10/05	001	Y	8/11/05	120	E.COLI	*****		*****			*****			NL		NL			M	
7/10/05	001	Y	7/11/05	120	E.COLI	*****		*****			*****			NL		NL			M	
6/10/05	001	N	6/13/05	120	E.COLI	*****		*****			*****	2	NL	2	NL		0	M		
5/10/05	001	N	5/11/05	120	E.COLI	*****		*****			*****	2	NL	2	NL			M		
4/10/05	001	N	4/11/05	120	E.COLI	*****		*****			*****	2	NL	2	NL		0	M		
3/10/05	001	N	3/11/05	120	E.COLI	*****		*****			*****	2	NL	2	NL		0	M		
2/10/05	001	N	2/10/05	120	E.COLI	*****		*****			*****	2	NL	2	NL		0	M		
1/10/05	001	N	1/11/05	120	E.COLI	*****		*****			*****	2	NL	2	NL		0	M		
12/10/04	001	N	12/10/04	120	E.COLI	*****		*****			*****	2	NL	2	NL		0	M		
11/10/04	001	N	11/12/04	120	E.COLI	*****		*****			*****	22	NL	2	NL		0	M		
10/10/04	001	N	10/12/04	120	E.COLI	*****		*****			*****	2	NL	2	NL		0	M		
9/10/04	001	Y	9/13/04	120	E.COLI	*****		*****			*****			NL		NL			M	
8/10/04	001	Y	8/11/04	120	E.COLI	*****		*****			*****			NL		NL			M	
7/10/04	001	N	7/9/04	120	E.COLI	*****		*****			*****	2	NL	2	NL		0	M		
6/10/04	001	N	6/10/04	120	E.COLI	*****		*****			*****	4	NL	4	NL		0	M		
5/10/04	001	N	5/11/04	120	E.COLI	*****		*****			*****	2	NL	2	NL		0	M		
4/10/04	001	N	4/12/04	120	E.COLI	*****		*****			*****	2	NL	2	NL		0	M		
3/10/04	001	Y	3/10/04	120	E.COLI	*****		*****			*****			NL		NL			M	
2/10/04	001	Y	2/12/04	120	E.COLI	*****		*****			*****			NL		NL			M	
1/10/04	001	N	1/12/04	120	E.COLI	*****		*****			*****	2	NL	2	NL		0	M		

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Rappahannock County, Virginia.

PUBLIC COMMENT PERIOD: XXX, 2009 to 5:00 p.m. on XXX, 2009

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Rappahannock County Public Schools, 6 Schoolhouse Road, Washington, VA 22747, VA0022471

NAME AND ADDRESS OF FACILITY: Rappahannock Elementary School Wastewater Treatment Plant, 34 Schoolhouse Road, Washington, VA 22747

PROJECT DESCRIPTION: Rappahannock County Public Schools has applied for a reissuance of a permit for the public Rappahannock Elementary School Wastewater Treatment Plant. The applicant proposes to release treated wastewater from residential areas at a rate of 0.008 million gallons per day into a water body. Sludge from the treatment process will be taken to the Remington Wastewater Treatment Plant (VA0076805) in Fauquier County, Virginia for proper disposal. The facility proposes to release treated sewage in the unnamed tributary to Rush River, in Rappahannock County in the Rappahannock River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, BOD₅, Chlorine, Total Suspended Solids; dissolved oxygen, Ammonia, and *E.coli*.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment.

Name: Joan C. Crowther

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3925 E-mail: jccrowther@deq.virginia.gov Fax: (703) 583-3821

**State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review**

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Rappahannock Elementary School Wastewater Treatment Plant
NPDES Permit Number:	VA00022471
Permit Writer Name:	Joan C. Crowther
Date:	April 13, 2009

Major []

Minor [X]

Industrial []

Municipal [X]

I.A. Draft Permit Package Submittal Includes:

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?			X
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?	X		
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet or permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet or permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water? Not directly; E.coli TMDL impaired segment is approximately 13 miles downstream from facility's discharge point. Permit contains an effluent limitation and monitoring requirement E.coli.		X	
a. Has a TMDL been developed and approved by EPA for the impaired water?			X
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?			X
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		